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THE UPPER CLARK FORK Water News

VOLUME I NUMBER 1
SEPTEMBER 1993

PLEASE RETURN

THE STEERING COMMITTEE

You received this publication because you have water interests in the Clark Fork River Basin. If you haven't heard of the Upper Clark Fork Steering Committee or if you tend to shy away from involvement in water issues, maybe the time has come to get acquainted with this group.

This committee is not what you would expect from a legislative mandate. We are not a bunch of bureaucrats telling you what you can or can't do with your water rights or favorite stream. The committee's members are your neighbors, people who own land in the basin, people who hold water rights. They are also the guy who pulls that big trout out of your local stream; they are your county commissioner, your energy provider, state legislator, local historian; some are the hunters who use private and public land.

This committee is meeting to discuss and research solutions to the age-old problem in the Clark Fork Basin: too little water in the right place at the right time to meet everyone's needs. If you would be most comfortable knowing first-hand what recommendations will be made, please help us formulate those recommendations; you are the only one with intimate knowledge of how your operation or water interest will be affected.

Some of the recommendations already suggested include enactment of a permanent, partial or total closure on new water rights in the upper Clark Fork Basin, voluntary riparian restoration projects, changes in irrigation practices, education, pollution control, new or enhanced storage facilities, and cost-sharing of storage or conservation projects.

The time you spend learning about and participating in the Upper Clark Fork Steering Committee's mission could save you concern and hard work later. Once the recommendations have been agreed upon by your neighbors it will be a lot tougher to get your ideas across. Why not become part of the solution and get involved now.

Jo Brunner
Montana Water Resources Association

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Please join us on October 12!

BASIN CLOSURE MEETING

Should all or some portion of the upper Clark Fork River Basin be closed to new water rights? The Legislature has directed the Steering Committee to answer this question, but before doing so, we need to hear from you. To help you decide, the Steering Committee and the Montana Water Course will co-sponsor a basin-wide meeting on basin closure at Saint Mary's Center in Deer Lodge on Wednesday, October 12 at 7:00 PM. The meeting will allow you to explore what a closure is, and what it would mean to basin water users. We will also discuss how the water rights closure might come about, and how it might be designed to meet the needs of individual water sheds such as Flint Creek, Rock Creek, the Little Blackfoot River, the Big Blackfoot River, or the Clark Fork River Basin as a whole.

Please Join Us

A Grassroots Movement

I. Who Are Those Guys, Anyway?

Few subjects in Montana generate conflict like the question of water use. This is especially true in the Clark Fork River Basin where water is often in short supply during the low-flow days of summer, a time when water is most critical to irrigators, cities, fish, hydro-electric users, and recreationists. But the conflict doesn't have to occur, or at least not at its usual rancorous level.

The Upper Clark Fork Steering Committee is searching for ways to make the available water go farther, to serve more uses, and to help maintain a level of higher water quality. We need your help.

This committee was established after the 1991 Montana legislature placed a moratorium on most new permits issued for use of surface water in the upper Clark Fork region. The legislature directed this group to produce a water-use plan which would reduce conflict and satisfy more demands for the water of the upper Clark Fork drainage, which includes the river itself and its tributaries above Missoula. This committee must submit its plan to the 1995 legislature, and the plan must include recommendations on how to better manage our water—without compromising existing water rights.

An impossible task? Maybe not. Consider the diversity of the committee. Representatives include the major stakeholders in the upper Clark Fork water picture, including individuals representing cities, agriculture, utilities and conservation organizations, as well as federal and state agencies. The group's plan will be unique to Montana because it is being generated by the grass-roots, not by bureaucrats. Committee members and their constituents will have a stake in ensuring the plan is carried out because they will have developed it themselves. And they will have developed it by building bridges between interests that are often at odds on water issues.

But the committee needs your ideas. If you irrigate or recreate in the basin, if your electricity comes from hydro-electric power, or your business or community depends on an adequate supply of clean surface water, then the committee needs to hear from you. We want to know your concerns and recommendations.

II. What's Possible?

Recommendations already discussed include limiting the issuance of new surface water permits in the upper basin, where there is often too little water to service the current water rights. Also recommended is the expansion or building of new water storage facilities if money and public support are available. The committee has discussed water conservation potential, improving water quality through cooperative streamside improvement projects, and the establishment of water shed committees who could solve backyard water problems.

Solutions are limited only by the amount of public participation at the steering committee level. The water plan won't solve all the problems nor quell all the disputes, but it is a concrete beginning and will encourage continued public involvement in our water future. Montanans are working with Montanans. We'd like you to join us.

You can start by participating in water shed committees established for the Clark Fork main-stem—Rock Creek, Flint Creek, Little Blackfoot and Big Blackfoot Rivers. Contact your local steering committee member (see enclosed list) for more information, or contact Gerald Mueller, facilitator for the Upper Clark Fork Steering Committee.

Bruce Farling

In the Beginning

The date was February 22, 1991, the place the Senate Agriculture Committee hearing room. Senate Bill 434 had just been tabled and apparently would die. Only minutes remained before the Agriculture Committee would adjourn, not to meet again until after the deadline for transmitting bills from one house of the legislature to the other. An unusual—some said unholy—alliance was about to see the product of an unprecedented negotiation come to naught.

Such an outcome probably should not have been surprising, for the subject of SB434 involved sensitive and controversial water rights issues. Water rights, per se, are not controversial. The legal system for deciding why and who and when water can be put to use—first in time, first in use—is well established. But change, or even the threat of change, to this system is another matter. Change raises not only controversy but also conflict in various forms, verbal and legal being the most common.

In recent years, talk and action aimed at seeking a way to keep more water in Montana's streams and rivers had increased. Two factors were responsible. The first was the growing interest in water-related recreation and environmental concerns in urban areas. The second was a seemingly endless drought. Montana's creeks and rivers were being dewatered, and in response, fishing, recreation, environmental organizations, and hydroelectric utilities turned to the courts and the legislature to seek protection for instream flows. The state's fish management and water quality agencies used the one available provision of existing law—water reservations—to pursue this same objective. Montana's farmers and ranchers who saw instream flow protection as a threat to their water rights, and hence to their livelihoods and lifestyles, adamantly opposed both these efforts. For the most part, agriculture had succeeded in blocking changes that would protect instream flows. This success, however, only inflamed the controversy.

The alliance before the Senate Agriculture Committee was unusual because it included the traditional warring parties: agriculture, sportsmen and women, environmentalists, hydroelectric utilities, and state water and fish management agencies. Over the past several months, the members of the alliance had negotiated an agreement that called for postponing a water rights fight in return for addressing water allocation and management in the upper Clark Fork River basin in a new way—through the collective action of local water users and government managers.

Unfortunately, other local agricultural interests who had not participated in the negotiations felt that the impending fight over the application by the Department of Fish, Wildlife and Parks (DFWP) to reserve waters of the upper Clark Fork River Basin for instream flows should be pursued and DFWP defeated. ▶

▶ These interests opposed SB434, and in the face of their opposition, the Committee had tabled the bill. However, in the closing minutes, the alliance's local agriculture members were able to suggest compromise language acceptable to Senator Tom Beck, who lives in Deer Lodge and is the bill's sponsor and a member of the Agriculture Committee. With Senator Beck's renewed support, SB434 passed the Senate Agriculture Committee and eventually the full legislature to become law. Montana's first grass roots basin water management planning effort was under way.

The alliance of the traditional opponents supporting SB434 did not form because any of them had "seen the light" and surrendered their interests. It formed, instead, as a result of two circumstances: the Northern Lights Research and Education Institute's Clark Fork Project and the pending water reservation contested case hearing before the Montana Board of Natural Resources and Conservation (BNRC).

Back in 1988, Northern Lights Institute, a non-profit organization dedicated to creating opportunities to resolve natural resource disputes outside of the legal system, had formed a broad-based committee to develop consensus management strategies for the Clark Fork River. From the efforts of this committee came a focus on water allocation and creation of a task force including representatives of local irrigators (Headwaters RC&D, Granite Conservation District, and the Montana Water Resources Development Association), recreationists and environmentalists (Trout Unlimited and the Clark Fork–Pend Oreille Coalition), hydroelectric utilities (Montana Power Company and Washington Water Power Company), and state and local government (the Departments of Fish, Wildlife and Parks, Natural Resources and Conservation, and Health and Environmental Sciences and the City of Missoula). Thus Northern Lights was able to induce the interested and conflicting parties to sit in the same room and talk at, if not always to, each other.

These talks may not have been productive except for the second circumstance, the pending water reservation contested case hearing before the BNRC. In 1987 Granite Conservation District (GCD) and the DFWP had filed applications for reservations of waters in the upper Clark Fork River basin. GCD had filed to reserve unallocated water for irrigation storage projects on Lower Willow Creek and Boulder Creek. DFWP had sought to reserve unallocated waters of the Clark Fork mainstem and 17 tributaries for instream flow. These applications were on a collision course. The basin's water users were generally divided into two camps–those favoring and those opposing instream flow protection. Both interest groups found themselves faced with a time consuming, expensive, and divisive legal battle with an uncertain outcome. This pending battle provided sufficient motivation for the parties to overcome their mutual suspicions and continue the discussions being facilitated by Northern Lights. To their surprise, they were able to identify sufficient common interests to negotiate an agreement.

The key to the agreement was a proposal to close the upper Clark Fork Basin to most new surface water rights for a limited period. During this period a steering committee, including the parties to the agreement and a clear majority of local water users, would attempt to write a grassroots water management plan for the entire Clark Fork Basin above Milltown Dam just east of Missoula. The water reservation process would be suspended for the period of the basin water rights closure. This agreement became SB434 which in turn became law.

Gerald Mueller

Stan Bradshaw is a charter participant of both the Upper Clark Fork Steering Committee and the group whose negotiations led to creation of the steering committee by the Montana Legislature. After receiving a law degree from the University of Montana in 1975, Stan went to work for the Montana Department of Health and Environmental Sciences and then the Montana Department of Fish, Wildlife and Parks. He left DFWP in 1986, and then lobbied for the Montana Council of Trout Unlimited for four legislative sessions, while also serving for a time as the group's resource director, specializing in water policy. Stan is a partner in Helena's Greycliff Publishing Company. He is also a fishing guide and canoeing instructor, and practices a little (as little as possible, he says) law.

Flint Creek Valley resident, Jim Dinsmore, is another charter member of the steering committee and the negotiation group. Born in Cleveland, Jim has been raising commercial cattle, hay, and grain on a ranch near Hall, Montana, for 18 years. He attended the University of Montana from 1968-73 where he majored in geography. Dinsmore has been a supervisor on the Granite Conservation District for 11 years, a Hall School Board member for six years, and a member of the Headwaters RC&D Agriculture Water Committee.

Gerald Mueller is facilitator for the Upper Clark Fork Steering Committee, as he was for the Clark Fork negotiation group. Gerald's involvement in the river basin began when he became director of the Clark Fork Project of the Northern Lights Institute, the nonprofit research organization that is sponsoring his current facilitation duties. He has also facilitated resolution of disputes for a broad spectrum of clients in his private consulting practice.

Gerald's professional career started in 1974 in the Energy Planning Division of the Montana Department of Natural Resources and Conservation, first as an air analyst and later as program manager for the permit program that sites major industrial or utility facilities. He worked for former Governor Ted Schwinden as an energy and natural resource advisor, and was later appointed to the Northwest Power Planning Council. He served on this important body from 1981-88.

Upper Clark Fork River Basin
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Coming Events

Little Blackfoot Water Shed Committee Meeting
Tuesday, September 21, 1993
7:00 PM
Avon School
Avon, Montana

Basin Closure Meeting
Tuesday, October 12, 1993
7:00 PM
St. Mary's Center
Deer Lodge, Montana

Upper Clark Fork River Basin
Steering Committee Meeting
Thursday, October 21, 1993
9:00 AM
St. Mary's Center
Deer Lodge, Montana

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THE UPPER CLARK FORK
Water News

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JANUARY 1994

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In This Issue

The first issue of this publication introduced you to the Upper Clark Fork River Basin Steering Committee and the job assigned to it by the Montana legislature: preparing a comprehensive water management plan that balances all of the beneficial water uses in the Upper Clark Fork Basin. In this issue you will find an outline of the work plan guiding the Steering Committee's development of the plan.

This Steering Committee and its efforts are unique. Formed as a result of negotiations between water users, this is not a government program. The majority of its members are water users or representatives of water users, not government bureaucrats. The Steering Committee has committed itself to striving to develop the water management plan via consensus. In this issue, Committee member Vivian Brooke explains why consensus is our goal.

The center page of this issue is devoted to one of the main questions that the management plan must address: should the Upper Clark Fork Basin remain closed to the issuance of most new water rights after the existing temporary closure expires on June 30, 1995? The article spells out a basin closure proposal and asks for your response and ideas.

This issue also includes biographies of Committee members, Vivian Brooke and Dennis Workman, and essays by Eugene Manley, retired manager of the Allendale Irrigation Company, who writes about irrigation return flows and related activities in the Flint Creek Valley, and Dennis Workman, fishery manager for west-central Montana for the Department of Fish, Wildlife and Parks, who explains fish habitat.

Four Letter Word

A Montana legislator was recently overheard saying: "Consensus is a four-letter word." This statement and others like it express an attitude that consensus means "giving in," and that it is something one should never do. Attitudes such as "standing one's ground" or "not selling out" are popular in today's disgruntled populace.

But where do these attitudes get us? If we all "stand our ground," I suppose we'll each have our ground upon which to stand. And if we don't "give in" to compromise, each of us will have helped build more walls among ourselves. I don't see these as workable ideals in the Clark Fork Basin.

There are a variety of interests in the basin, and many compete for water. Consensus building has been and continues to be one of the primary operating principles of the Upper Clark Fork Basin Steering Committee. In more than two years of committee meetings, we have heard reports, visited areas with water problems and discussed individual interests in detail. Through this process we have laid a foundation from which to build consensus. Each committee member brings his or her unique experience and perspective to the table. Once we begin to create a management plan, the members will be working with the understanding that they can't have everything exactly as they want, or that no single member has all the answers to take care of everyone's concerns. The competing interests – irrigators, power generators, municipalities, recreationists and others – are a reality and it is our mutual task to find a way for all of us to exist in a way that interferes with each other as little as possible. By necessity, there will have to be some giving in and some compromise, or the long hours of meeting will have gone for naught. But with consensus, the people and the users of the basin can move forward together.

I invite you to join the process of building consensus.

Vivian Brooke, Montana House of Representatives

PLEASE RETURN

FISH HABITAT

When Is A Stream A Home?

Habitat is a word that several years ago produced blank stares from many people. Now it seems to be a household word. In the environmentally sensitive age of the 1990s, most people recognize habitat as the places where living things must find the necessities for surviving on his planet. Former President Jimmy Carter and others have popularized the concept in reference to humans with their work in the Habitat for Humanity Program, which builds houses for low-income people. To a biologist, habitat is everything.

Biologists try to understand the complexities of habitats in order to sustain populations of animals and plants in the face of competing demands on limited resources. So the habitat of particular animals, such as fish, get measured, photographed and monitored in every conceivable way in a quest for keys to successful management. Habitat is the environment of an organism, the conditions that provide food, shelter, oxygen and other necessities needed to complete a species' life cycle. On Montana's streams, good habitat is cool, clean, clear water flowing through deep pools, steep riffles and log jams. Good stream habitat includes overhanging trees and brush, as well as undercut banks. The more diverse the habitat, the better.

Naturally, adequate water is the most critical element of fish habitat and management. The quantity of water in a stream controls how much space is available for fish, especially for the hiding cover that is found in deep pools, debris, undercut banks and rough stream surfaces. Water quantity also controls food production. Many fish prey, such as aquatic insects, require some of the same basic habitat requirements as fish.

Stream flow is easy to measure, and biologists have developed many research-tested calculations and models that help them assess the amount of fish production that can be expected from a given stream flow. In its 1986 application to reserve unappropriated water for in-stream flows in the upper Clark Fork basin, Montana's Department of Fish, Wildlife and Parks determined streamflow needs for fish by looking at channel sizes and configurations in targeted streams. Reservation requests were based on habitat needs and what was potentially available, instead of historical or current water-use conditions. Because reservations by law aren't allowed to harm existing water rights, the department understood that some of the requested quantities would not be available in some places at some times of the year. Senior water rights would retain precedence. Yet the requests were still made to demonstrate what fish would need in given stream reaches.

Water quality is another important aspect of habitat. Adult trout, for example, need water temperatures between 50 degrees F and 64 degrees F. The range is narrower for juveniles and eggs, though it is still in the 50-degree range. Shade is therefore required in the summer to keep temperatures livable. Temperature also affects the amount of dissolved oxygen—a critical survival element for fish—that water can hold. The colder the water the more oxygen it can hold. Water also needs to be free of toxic substances such as pesticides. But the most insidious killer of fish populations is sand-sized sediment. It settles in gravelly areas that produce fish food or provide habitat for egg incubation. Accumulations of sediment reduce populations without necessarily directly killing a fish.

Volumes have been written about fish habitat. It is a complex of physical and chemical characteristics that exists in and next to streams. Though I can't do justice to the subject in a few hundred words, it is generally safe to say that land-use practices that are good for maintaining soils, terrestrial vegetation and stream channel stability are also good for fish.

Dennis Workman
Montana Department of Fish, Wildlife and Parks

RICHARD HENLEY PHOTO ■

WATER RIGHTS BASIN CLOSURE

Should all or portions of the upper Clark Fork River Basin be closed to new water rights? The Steering Committee must answer this question in the Upper Clark Fork water management plan. This mandate stems from the state law which closed the upper Clark Fork basin, with the exception of the Blackfoot and Rock Creek watersheds, to the issuance of most new surface water rights until June 30, 1995.

The Steering Committee intends to make recommendations in the plan about basin closure only after listening to as many basin water users as possible. On October 12, 1993, the Steering Committee and the Montana Water Course of Montana State University co-sponsored a basin-wide meeting on closure in Deer Lodge to provide water users with basic information about what a closure is and how it happens, what a closure might mean for future water development, and what some of the advantages and disadvantages of closure might be. Some thirty water users from throughout the basin attended and completed a survey of their views about closure. Almost all respondents favored some form of basin closure or had not yet made up their minds about it. Basin closure has also been discussed during several meetings of the Blackfoot, Little Blackfoot, Flint Creek, and Upper Clark Fork mainstem and tributaries watershed committees.

Based on the oral and written views received to date, the Steering Committee has developed the following draft proposal for a restriction on new water rights:

> THE UPPER CLARK FORK RIVER BASIN STEERING COMMITTEE PROPOSES TO CLOSE THE UPPER CLARK FORK RIVER BASIN TO THE ISSUANCE OF NEW WATER RIGHTS. THE AREA CLOSED WOULD INCLUDE THE ENTIRE CLARK FORK AND BLACKFOOT RIVER DRAINAGES ABOVE MILLTOWN DAM. THE CLOSURE WOULD BE CONDITIONED SO THAT IT WOULD NOT PREEMPT NEW PERMITS FOR THE DEVELOPMENT OF STORAGE FOR BENEFICIAL USES OR FOR DEVELOPMENT OF GROUND WATER. ALSO, SURFACE WATER PERMITS FOR DOMESTIC, STOCK WATER, AND SUPERFUND USES WOULD CONTINUE TO BE ALLOWED. THE EXEMPTIONS TO THE CLOSURE WOULD BE SUBJECT TO REVIEW AND RECONSIDERATION EVERY FOUR YEARS PRIOR TO A REGULARLY SCHEDULED SESSION OF THE MONTANA LEGISLATURE.

The Steering Committee is interested in your views on this proposal and the following specific issues:

■ 1. DEFINITION OF GROUND WATER

The existing temporary closure defines ground water to mean: "*. . . any water that is beneath the land surface or beneath the bed of a stream, lake, reservoir, or other body of surface water and that is not a part of that surface water.*" The Department of Natural Resources and Conservation has interpreted this language to require an applicant for a ground water permit to demonstrate that a new well would not be connected hydrologically to any surface water. Should this definition be retained or changed? How should it be changed?

■ 2. EXEMPTION FOR SURFACE WATER PERMITS FOR DOMESTIC USES

The existing temporary closure defines domestic use to mean: "*. . . use of water common to family homes, including use for culinary purposes, washing, drinking water for humans and domestic pets, and irrigation of a lawn or garden of less than one acre, not to exceed a total of 3.5 acre-feet per year. The term includes municipal uses for expanded domestic use but does not include commercial or industrial use.*" Should this definition be continued or changed? How should it be changed?

■ 3. EXEMPTION FOR SUPERFUND USES

The existing temporary closure also exempts permits . . . *to appropriate water to conduct response actions or remedial actions . . .*" pursuant to the federal Superfund statute. The Steering Committee has heard divergent views about continuing this exemption.

Those in favor of continuing a Superfund exemption argue that it would provide an opportunity for a broader range of remedial alternatives, some of which may require water for successful application. The Superfund program cannot presently anticipate exactly where or when additional water may be needed. The Department of Natural Resources and Conservation (DNRC) has already required permits associated with a portion of the Warm Springs Ponds remedial action, and EPA and ARCO have cooperated with the DNRC in obtaining those permits and in analyzing the water rights situation for that cleanup. It should be noted that continuing the exemption would mean only that an application for a water right could be made; it does not mean that water would be available automatically if that would harm senior water rights holders. It is EPA's intent that the Superfund cleanup program in the Clark Fork drainage should not adversely impact any existing water rights.

Those against continuing an exemption argue that it would amount to special consideration for one company and would be unnecessary. The existing exemption was created by the legislature at the request of ARCO in response to its pending obligation to repair the environmental damages caused by mining, smelting, and related activities in the Butte-Anaconda area. However, rather than make use of the exemption, ARCO (with the agreement of the DNRC) has taken the position that it does not need a water right for water treatment in Warm Springs Ponds 2 and 3. In fact, a new water right granted under an exemption to the closure may have little practical value for Superfund clean-up actions. Under Montana water law, a new right would be junior to all previously granted rights. This means that in many years a new right may not provide water during the irrigation season. To ensure water availability, ARCO would have to purchase an existing water right with an early appropriation date and obtain a change of use permit. Basin closure would not affect purchases of existing water rights or permits for changes to existing rights. ARCO should play by

Upper Clark Fork River Basin Steering Committee Work Plan

When Are Things Happening?

The Steering Committee has adopted a work plan and timeline to guide the preparation of the water management plan. The following table which will be updated and included in subsequent issues of *The Clark Fork Water News* summarizes the progress to date towards completion of the management plan. While all Steering Committee meetings are open to the public, some activities depend directly on the involvement of upper Clark Fork water users. These activities are printed in bold italics.

ACTIVITY	DURATION	DATES	STATUS
1. Develop Work Plan	4 months	Sept. 1992-Jan. 1993	Complete
2. Steering Committee & Water Shed Committee Deliberations on Management Plan	1.5 years	Jan. 1993-June 1994	Ongoing
A. Form & Activate Water Shed Committees	3 months	Jan.-March 1993	Complete
B. ***Water Shed Committee Deliberations***	1 year	March 1993-March 1994	Ongoing
C. Complete Steering Committee Deliberations on Draft Management Plan	3 months	April-June 1994	
3. Prepare Draft Management Plan	2 months	July-Aug. 1994	
4. ***Public Comment Period on the Draft Management Plan, Including Public Hearings***	8 weeks	Sept. 5-Oct. .28, 1994	
5. Prepare Final Management Plan and Any Necessary Implementing Legislation	6 weeks	Oct. 31-Dec. 9, 1994	
6. BNRC and DNRC Review of Final Management Plan	2 weeks	Nov. 28-Dec. 9, 1994	
7. Print Final Management Plan	3 weeks	Dec. 12-30, 1994	
8. Present Final Management Plan to Governor, Legislature and the Public		Dec. 31, 1994	

the same rules as all other water users. It does not need and should not be granted an exemption from the closure.

The Steering Committee is interested in your view concerning this issue.

■ 4. Review and Reconsideration of the Closure

Should a closure have a built-in date for a review and reconsideration of its provisions? How often should a review and reconsideration occur? The draft proposal above specifies a review every four years prior to a legislative session. It does so because the legislature is the body that can modify the closure. If a review and reconsideration is a good idea, should some body such as a permanent Upper Clark Fork River Basin Steering Committee or the Board or Department of Natural Resources and Conservation conduct them and make recommendations to the legislature? The Steering Committee would appreciate your thoughts on these questions.

Responses to these questions and any other comments can be provided at any Steering Committee or watershed committee meeting or to any member of the Steering Committee (please see the address and telephone list on the back page of this issue) or to the Committee's facilitator, Gerald Mueller, at 7165 Old Grant Creek Road, Missoula, MT 59802.

Vivian Brooke is one of two legislators (the other being Senator Tom Beck of Deer Lodge) appointed to the Clark Fork Steering Committee. Vivian has represented Missoula's University District in the Montana House of Representatives since 1988. She serves on the House Judiciary and Natural Resources Committees. She served one term on the Legislative Water Policy Committee. Born in New York and raised in Florida, Vivian started to come to Montana in 1956 to work on an uncle's resort near Glacier Park. She stayed in Montana for good in 1962 when she started attending Carroll College, where she received a degree in sociology and later worked as a social worker. Vivian moved to Missoula in 1966, raising three daughters and a son and volunteering in many church, school and community activities. Her husband, Joe, is part owner of Eagle Stud Mill in Hall.

Dennis Workman was appointed to the Upper Clark Fork Steering Committee in August 1992, replacing Eileen Shore as the representative for Montana's Department of Fish, Wildlife and Parks. Dennis began working for the agency in 1971, and has been the department's fishery manager for west-central Montana since 1979. He has 15 years experience working with landowners and on fish and wildlife issues in the Clark Fork basin. Dennis hails from a small farm in Iowa and has a bachelor's and a master's degree in fish and wildlife management from Utah State and Montana State Universities. He and his wife, Karen, live in Missoula.

Irrigation Return Flows

An Important Water Resource

How well do we really understand return flows from irrigation? First we must understand that the sources of all water in a basin are natural, created by nature through rainfall and accumulated snowpack.

Return flows in a basin are those waters created by flood irrigation, a method that spreads water across tracts of land to increase production. Some of this water is used by crops, some evaporates, but the largest amount seeps into underlying aquifers composed of materials such as clay, sand, gravel and bedrock. Within a short time, some of that water returns to the surface in the form of small seeps and springs that combine to create new water courses and supplement existing ones.

Some return flows develop almost immediately, others develop over varying lengths of time, and in ever increasing flow rates. It is this sort of long-term development of return flows that can help stabilize water sources. Over time, and with distance downstream, we find the source of irrigation water changes from natural flow to return flow. At the same time, we find in many streams this return flow can add up to a greater volume of water than might flow naturally, and that return flow furnishes most of the water in many reaches of a basin. Return flows, then, can contribute to the overall efficiency of the basin's usage of the original natural flow.

To illustrate these points, we can look to Willow Creek in the Flint Creek Basin of Granite County. There, water available for irrigation is measured, as are all diversions for irrigation. In 1988, a very dry year, late in the irrigation season on a particular day, natural flow measured 1,035 miners inches of water (about 26 cubic-feet per second). Yet the measured amount diverted at the drainage's irrigation diversions totaled 4,100 miners' inches. The difference of more than 3,000 inches came from return flows created by early season flood-irrigation.

Because return flows can become an integral component water usage in a basin, we must learn more about what creates them, where they are and in what amount. Then, and only then, can we become more efficient in our use of available water. We must also learn what actions can adversely affect strategic return flow patterns.

Last May, I learned that if might be possible to get the U.S. Bureau of Reclamation to study return flows. In June, steering committee participants Gerald Mueller, Jo Brunner and I met with staff from the Bureau and from the Montana Department of Natural Resources and Conservation to discuss a possible study. I told them the Clark Fork's Flint Creek Basin would be the ideal place to study, and that its results could be educational to all water interests in the basin. After the meeting, we toured the basin and looked at its water sources and some of its established return flows.

Now, initial preparations are underway to do the study, and I hope the results open the way for a better understanding of how we can manage our water more effectively here and throughout Montana.

Eugene Manley

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THE UPPER CLARK FORK Water News

VOLUME I NUMBER 3
JUNE 1994

IN THIS ISSUE

When it authorized the creation of the Upper Clark Fork River Basin Steering Committee, the Montana Legislature directed the committee to write a comprehensive water management plan that must:

1. Consider and balance all beneficial uses of the water in the Upper Clark Fork River basin;
2. Contain recommendations regarding the temporary closure of the Upper Clark Fork River Basin to most new surface water rights;
3. Identify and make recommendations regarding resolution of water-related issues in the Upper Clark Fork River Basin.

The second issue of this publication set forth and asked for our readers comments on a proposal that would continue the basin surface water rights closure. It also explained two basin water issues identified by the Steering Committee: fishery habitat needs and irrigation return flows. In this third issue, the center page addresses the requirement that the plan consider and balance the basin's beneficial water uses. This edition also discusses three additional topics, a proposal to reduce nutrient pollution of the Clark Fork River by using the out flow of the Deer Lodge sewage treatment plant to irrigate hay fields rather than discharging it to the River; a study being conducted by the Soil Conservation Service of new or upgrades to existing water storage facilities; and hydropower generation on the Clark Fork River.

This issue also introduces additional Steering Committee members: Joe Aldegarie and Bruce Farling.

HYDRO STORY

Clark Fork River water has many uses and benefits, including the production of renewable energy through low-cost hydroelectric power. The Montana reach of the Clark Fork has three power generating plants: Milltown and Thompson Falls are owned by the Montana Power Company (MPC), and Noxon Rapids is owned and run by the Washington Water Power Company (WWP). All three have water rights for storage and power generation.

The oldest Clark Fork hydroelectric facility is Milltown Dam, which was developed by Butte copper king W.A. Clark to power the sawmill at Bonner. Milltown's electricity also ran electric lights in Missoula and an electric railway service running between Missoula and Bonner. The water rights at Milltown have a 1904 priority date. Milltown dam is a small facility. It generates 3.4 megawatts, using 2,000 cubic-feet per second (cfs) and up to 1,451,556 acre-feet of water a year (af/yr) to generate power, and 940 cfs for storage. At times, more than half the water flowing through the dam is from the Blackfoot River. MPC's water rights at Milltown will therefore be adjudicated in three basins: two Clark Fork River sub-basins (76G and 76M) and the Blackfoot (76F).

Thompson Falls Dam was completed in 1917. It was developed to provide power for sawmills at Thompson Falls, the mines in the Coeur d'Alene region and the Chicago, Milwaukee and St. Paul Railroad. Based on notices of appropriations, the priority dates for MPC's water rights at Thompson Falls range from 1905 to 1909. Thompson Falls' historic total generating capacity is 40 megawatts, and it uses 11,120 cfs and up to 8,050,508 af/yr for generating power, as well as 7,547 cfs for storage. MPC's water rights for Thompson Falls were decreed as part of Basin 76N. The company is currently expanding the facility to generate another 50 megawatts.

Completed in 1960, Noxon Rapids Dam is owned by Washington Water Power, a utility company somewhat smaller than MPC. Noxon Rapids has a nameplate generating capac- ▷

PLEASE RETURN

ity of 466.2 megawatts, which serves ratepayers in northern Idaho and eastern Washington. Noxon Rapids is part of the interconnected system that benefits electrical users throughout the intermountain region and annually provides approximately four million dollars in direct tax dollars to the State of Montana and Sanders County. WWP's water rights at Noxon Rapids total 55,400 cfs. Of this, 40,400 cfs are decreed rights – 35,000 have a priority date of Feb. 20, 1951 and 5,400 have a priority date of April 3, 1959. The decreed rights include 29,248,264 af/yr for power generation; 267,000 af/yr to maintain minimum reservoir elevation; 230,700 af/yr used once a year for stream flow regulation; and 38,400 af/yr usable at any time to meet electric-system load requirements and regulate stream flows. An additional 15,000 cfs were granted in a provisional water use permit issued by the State of Montana in 1976.

All the tributaries of the Upper Clark Fork contribute water for beneficial use and reuse at the downstream dams. Because they are hydroelectrically connected, the large hydroelectric water rights on the Clark Fork River affect the availability of water in the river's upper reaches. Because the hydroelectric water rights are large, many existing and all new water allocation activities in the Clark Fork River Basin affect the ability of the power companies to exercise their water rights. The Clark Fork doesn't have enough water to fill these hydroelectric water rights year-round. Milltown, the smallest of the dams, generally has only enough water to satisfy its rights April through June. According to a 1988 Montana Department of Natural Resources and Conservation study, Noxon Rapids Dam's water rights are satisfied an average of only 22 consecutive days a year, generally late May to early June. A 1988 Montana State University study concluded that additional diversions above Noxon cause a direct reduction in power generation at the dam.

Concerns over water availability prompted the two power companies to intervene in Granite Conservation District's late-1980s application process to reserve water in the upper Clark Fork. But instead of pursuing their objections, the companies, like other users in the basin, decided to participate on the Upper Clark Fork River Basin Steering Committee. In addition, both utilities are cooperating with state and federal agencies to improve recreation opportunities and wildlife and fish habitat in the basin. They hope cooperation with steering committee members also produces a comprehensive water management plan that addresses the concerns of both power generators and other water users in the Clark Fork Basin.

Holly Franz
Montana Power Company
and Steve Fry
Washington Water Power Company

STORAGE

As we watch the warm, longer days of spring emerge, high-mountain snows melt and either seep into the ground or form rivulets that collect and fill the Clark Fork Basin's streams. Later, in August, we may stand on streambanks and wish for the return of spring's high and rolling waters because summer's flows are often not adequate for satisfying demands for irrigation, stock water, trout fishing and personal consumption. And that's why historically water storage has become a management tool used to "save" water.

Because development of new storage projects is a management alternative often brought to the table during public discussions on water, the Upper Clark Fork River Basin Steering Committee is examining its potential.

Water users in six sub-watershed committees of the upper Clark Fork Basin have been asked to discuss storage, review suggestions of the steering committee and make recommendations on potential storage sites, site conditions, possible beneficiaries and local acceptance. The steering committee places a high value on the thoughts of the subcommittee members.

The steering committee has also formed a subgroup to examine water storage potential. This group has assembled and examined studies for new or enhanced water storage projects. It has also developed a screening process for ranking potential storage sites. The group looked at location, potential reservoir size and safety hazards, amount of dam fill versus water stored, potential for resolving water-use conflicts and geological impediments. A list of ranked reservoirs and the screening process have been presented to the subcommittees and Steering Committee.

After receiving recommendations (with the subcommittees' receiving extra attention), the Steering Committee and its storage subgroup identified eight potential or current storage locations as "high interest" sites. However, high interest doesn't necessarily indicate they are feasible. Additional information on the sites must be evaluated and updated to determine if they are viable for storage projects. Existing information on storage sites will be translated into a standardized summary and examined under today's legal, financial and technical conditions. Among the items to be examined are: construction requirements and costs, known or modeled water availability, existing water rights, present operating regulations, new land use conditions and potential beneficiaries. The Steering and storage committees will be helped in this task by the U.S.D.A. Soil Conservation Service and Montana Department of Natural Resources and Conservation.

The Steering Committee's investigations hopefully will determine which high interest sites warrant further site-specific study of the physical, economic and environmental conditions required to pursue construction of a storage project.

High-Interest Storage Sites

New Sites
Lower Brown's Gulch, near Ramsey
Cable Creek, west of Anaconda
Blackfoot Meadow, above Elliston
Upper Three Mile Creek, near Avon

Existing Sites
Rainbow Lakes, southeast of Drummond
Gold Creek Lakes, southeast of Drummond
Upper Douglas Creek, southeast of Hall
Storm-Silver Lake, west of Anaconda

Mike McLane
Montana Department of Natural Resources and Conservation

BALANCING BENEFICIAL WATER USES

One of the directives of the Montana Legislature to the Upper Clark Fork River Basin Steering Committee in writing a comprehensive water management plan is to "consider and balance" all beneficial uses of water in the Upper Clark Fork River Basin. The Legislature did not, however, specify what "consider and balance" means. The Steering Committee has therefore *tentatively* developed the following five-part response to this direction. We ask for your comments on this approach.

Your comments or questions can be provided at any Steering Committee or watershed committee meeting or to any member of the Steering Committee (please see the address and telephone list on the back page of this issue) or to the Committee's facilitator, Gerald Mueller, at 7165 Old Grant Creek Road, Missoula, MT 59802.

I. Water Uses

The plan will list as beneficial the following uses of water in the Upper Clark Fork River Basin, but will not prioritize them or decide which uses are legitimate and valuable. The order of the list does not suggest any priority.

Agriculture and stock watering
Domestic
Ecological
Educational and scientific
Flood control and storage
Fur bearer and waterfowl habitat
Industrial/mining
Municipal
Power generation
Recreation
Return flows
Salmonids (cold water fish) and aquatic life habitat
Transportation
Tribal cultural rights
Water quality

II. Critical Water Needs or Problems

The plan will identify critical needs or problems for any of the above uses together with the possibilities for meeting the needs and fixing the problems where possible. The plan will attempt to address first the needs or problems affecting the largest number of the above uses.

III. Basin Specific Water Management Mechanism

The plan will recommend creation of an on-going basin water management mechanism including a basin-wide committee and watershed committees. The mechanism would *not* be vested with legal authority to compel any action by any water user or water interest. It would be charged with the following objectives:

A. Provide a forum for all interests to communicate about water issues;
B. Provide education about water law and water management issues;
C. Identify short-term and long-term water management issues and alternatives for resolving them;
D. Facilitate resolution of water related disputes via consensus-based collaborative processes including mediation;
E. Consult with the basin's local governments; and
F. Report periodically to some entity with water management authority such as the legislature.

The Steering Committee has agreed that the mechanism should include representation of the full range of the basin's water interests as members, but has only identified alternatives by which these members might be appointed. The alternatives include:

1. **The State Water Plan Model**–The mechanism would be included in the State Water Plan so that members of the basin-wide committee would be appointed by the Director of the Department of Natural Resources and Conservation pursuant to direction from the Legislature as to the types of water interests to be represented (as was the case for the Steering Committee). Members of the watershed committees could be appointed by the basin-wide committee or local government officials such as county commissioners.

2. **The Local Government Model**–Local government officials such as county commissioners could appoint both the basin-wide committee and the watershed committees.

3. **The Grass Roots Model**–Local government officials such as county commissioners could appoint the watershed committees, and the watershed committees could designate the basin-wide committee members.

The Steering Committee is interested in your views and supporting rationale for an appointment mechanism.

IV. Reserving Water for Future Water Uses

The Steering Committee has agreed that water should somehow be reserved for future uses in principle, but has not settled on a specific proposal for doing so. The alternatives include:

A. Closing the basin to most new surface water rights with an exemption for storage of high water for multiple uses and a periodic review of the closure exemptions. The provision for additional storage of high flows and the periodic review would have the effect of reserving both unappropriated water and high flows for future use.
B. Pursuing the formal water reservation process suspended by the Legislature in 1991.

V. Providing Protection for Instream Flows

The Steering Committee has discussed including protection of instream flows in some manner as a part of balancing water uses. One means of providing protection might be to allow the Department of Fish, Wildlife and Parks to purchase an existing water right from a willing seller, convert it to an instream right, and then protect it against appropriation by junior users. To obtain and protect an instream right in a specific stretch of a stream, DFWP would be required to proceed through the water rights change process, and demonstrate that no other water right holder would be adversely affected by the change.

The Steering Committee is entertaining the idea of pilot testing this approach for a limited period only in the Upper Clark Fork River Basin.

Upper Clark Fork River Basin Steering Committee Work Plan

When Are Things Happening?

The Steering Committee has adopted a work plan and timeline to guide the preparation of the water management plan. The following table which will be updated and included in subsequent issues of *The Clark Fork Water News* summarizes the progress to date towards completion of the management plan. While all Steering Committee meetings are open to the public, some activities depend directly on the involvement of upper Clark Fork water users. These activities are printed in bold italics.

ACTIVITY	DURATION	DATES	STATUS
1. Develop Work Plan	4 months	Sept. 1992-Jan. 1993	Complete
2. Steering Committee & Water Shed Committee Deliberations on Management Plan	1.5 years	Jan. 1993-June 1994	Ongoing
A. Form & Activate Water Shed Committees	3 months	Jan.-March 1993	Complete
B. ***Water Shed Committee Deliberations***	1 year	March 1993-March 1994	Ongoing
C. Complete Steering Committee Deliberations on Draft Management Plan	3 months	April-June 1994	
3. Prepare Draft Management Plan	2 months	July-Aug. 1994	
4. ***Public Comment Period on the Draft Management Plan, Including Public Hearings***	8 weeks	Sept. 5-Oct. .28, 1994	
5. Prepare Final Management Plan and Any Necessary Implementing Legislation	6 weeks	Oct. 31-Dec. 9, 1994	
6. BNRC and DNRC Review of Final Management Plan	2 weeks	Nov. 28-Dec. 9, 1994	
7. Print Final Management Plan	3 weeks	Dec. 12-30, 1994	
8. Present Final Management Plan to Governor, Legislature and the Public		Dec. 31, 1994	

Deer Lodge Wastewater and Land Application

High levels of the nutrients nitrogen and phosphorus in the upper Clark Fork River attract considerable attention because they stimulate the growth of high densities of water plants, much like fertilizers enhance the growth of crops and lawns. The nutrients trigger a proliferation of attached algae, which impairs many beneficial uses of the river and causes violations of state water quality standards. Nutrient sources affecting the Clark Fork include municipal and industrial wastewater discharges, stormwater, diffuse runoff (so-called nonpoint pollution) from agricultural and urban areas, and natural geological sources.

Using treated municipal wastewater for crop irrigation can reduce nutrient pollution and provide nitrogen and phosphorus for crops. Many uses of streams, including irrigation and recreation, can benefit when wastewater discharges are put on cropland instead of into surface waters during summer when nutrient influences in streams are most pronounced. This win-win scenario is currently being evaluated in the Upper Clark Fork Basin under a cooperative arrangement between the City of Deer Lodge, the National Park Service's Grant-Kohrs Ranch, the Montana Department of Health and Environmental Sciences (MDHES) and several private landowners.

The idea of applying municipal wastewater from Butte, Missoula, and Deer Lodge on agricultural lands was first recom- ▷

mended in the 1992 Clark Fork nutrient management plan developed by MDHES. That plan was merged with similar strategies for reducing nutrients in the Idaho and Washington portions of the Clark Fork-Pend Oreille Basin, resulting in a master "tri-state plan" that identifies pollution sources and recommends local solutions for eliminating them.

In May 1993, an Upper Clark Fork Basin Steering Committee sub-group heard recommendations from the tri-state plan and began discussions to evaluate the possibility of using Deer Lodge's municipal wastewater for irrigation during the summer. The group included ranchers, recreationists, local industry and city, county and federal officials. The Deer Lodge discharge seemed to be a good candidate for land-application to agricultural fields given the following: the proximity of a main irrigation supply ditch to the Deer Lodge wastewater lagoons, nearby agricultural use patterns, the relatively small amount of wastewater involved and a seasonal shortage of irrigation water in the Deer Lodge Valley.

Lands served by Deer Lodge's Kohrs-Manning ditch were an early focus of study for irrigation with municipal wastewater. However, after a ditch company representative told the subcommittee that the land served by the ditch had a shallow groundwater system and return flows that returned quickly to the river, the committee began to look elsewhere. The National Park Service then graciously offered more than 100 acres of pasture as a potential application site. This land adjoins the city's wastewater lagoons. In addition, two other adjacent landowners have expressed interest in some of the wastewater.

The City of Deer Lodge is now cooperating with MDHES in evaluating the feasibility of seasonal land-application of its wastewater. A MDHES grant was matched with a 25 percent contribution from the city to fund a contracted engineering evaluation. Among other things, the evaluation will look at lagoon outflows, characteristics of the wastewater, suitability of the potential application sites (soils, crop needs, etc.), suitability of using Grant-Kohrs Ranch's existing irrigation system and public health and environmental consequences. Study results are due in May.

If the study indicates the project is viable, funding for the plan will probably come from a combination of sources, including the city, private sources, the state and federal government.

Though it is premature to predict the viability of the plan, the project's partners are optimistic. Land application of all of Deer Lodge's wastewater in the summer could reduce nutrient levels by 70 percent immediately downstream in the Clark Fork. That would reduce algae-related river problems in 90 or so miles of river. In addition, marginal pastureland next to the wastewater lagoon would be transformed into lush grassland. Deer Lodge has a great opportunity to develop a farsighted solution for wastewater disposal—one that enhances the river and its uses while sparing local taxpayers from the possibility of having to finance improvements for conventional wastewater treatment.

Gary Ingman, Montana Department of Health and Environmental Sciences

Joe Aldegarie was appointed to the Upper Clark Fork River Basin Steering Committee to represent the City of Missoula. Joe Aldegarie has been the Director of Public Works for the City of Missoula for the past 12 years. Prior to that, he worked as the Director of Environmental Health with the Missoula City-County Health Department for six years. He also served for two years on the State Water Planning Advisory Council. Joe was born in the Upper Peninsula of Michigan and graduated there from the Michigan Technological University with a bachelor's degree in Civil Engineering with a specialty in Sanitary Engineering. After two years with the Michigan State Highway Department, he moved to the Los Angeles area and worked for the City of Beverly Hills for 10 years prior to moving to Missoula in 1975. He and his wife, Sondra, have three grown daughters and reside in the Rattlesnake Valley of Missoula.

Bruce Farling, executive director of Montana Trout Unlimited, lives near Florence in the Bitterrot Valley. He is an original member of the Upper Clark Fork Steering Committee and a hold-over from the group that negotiated the 1991 legislation creating the committee. Before going to work for Trout Unlimited, Bruce was conservation director of the Clark Fork Coalition for six years. Prior to that he worked for the U.S. Forest Service for nine years, eight years as a wilderness ranger in the Selway-Bitterroot Wilderness of Idaho and Montana. He has also been a freelance and staff writer, and labored at a number of odd jobs including running printing presses and avoiding getting killed when working for a gyppo logger. He has a B.S. in geography and environmental sciences from the University of Oregon and attended graduate school in journalism at the University of Montana. Bruce helps edit the Upper Clark Fork Steering Committee newsletter.

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Draft Plan Released

The draft version of the Upper Clark Fork River Basin Water Management Plan has been released. This fourth issue contains the summary of the recommendations from the plan and a schedule and location of the seven public hearings which the Upper Clark Fork River Basin Steering Committee will hold to solicit the reaction of the people of the basin to it.

The summary of the work plan on page 3 describes the schedule for the Steering Committee's remaining activities leading to the presentation of the final water management plan to the governor and legislature by the end of this year.

Copies of the full draft plan are available at the following locations. Single copies can also be requested by returning the mail-in form.

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Butte Public Library
Deer Lodge Public Library
Helena Public Library
Lubrecht Forestry Center
Missoula Public Library
Montana State Library
Montana Water Center at MSU
Granite, Deer Lodge, Lewis & Clark, Missoula, Powell, and Silverbow County Extension Offices
North Powell Conservation District
Lewis & Clark Conservation District
Granite Conservation District
Deer Lodge Valley Conservation District
Missoula County Conservation District

Draft Plan Recommendation Summary

The Upper Clark Fork River Basin Steering Committee is charged by state statute with writing and presenting to the governor and legislature a comprehensive water management plan that:

(a) considers and balances all beneficial uses of the water in the Upper Clark Fork River basin;

(b) includes a description of the standards applied, the data relied upon, and the methodology used in preparing the plan;

(c) contains recommendations regarding the Upper Clark Fork River basin closure as provided in 85-2-336;

(d) identifies and make recommendations regarding the resolution of water-related issues in the Upper Clark Fork River basin; and

(e) includes the Blackfoot River, designated as subbasin 76F, and Rock Creek, designated as subbasin 76E, in any considerations made under subsections (a) through (d).

The Steering Committee has completed and released a draft management plan for public comment. The following summarizes the recommendations found in Section I of the draft management plan.

A. BASIN CLOSURE

The legislature should close the Upper Clark Fork River Basin to the issuance of most new surface and ground water use permits. The area closed should include the entire Clark Fork and Blackfoot River drainages above Milltown Dam. The closure is not intended to affect water uses that do not require a water permit. It should be conditioned so that it would not preempt new permits for the development of:

1) Storage for beneficial uses;
2) Stock water;

▷

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3) Uses determined to be non-consumptive; and

4) Superfund remedies, except for dilution, required by the U.S. Environmental Protection Agency for Superfund sites designated as of January 1, 1994.

The exemption for Superfund remedies should expire after five years on January 1, 2000, so that applications for new water rights permits for this purpose would have to have been filed on or before December 31, 1999.

A "non-consumptive use" means a beneficial use of water that does not cause a reduction in the source of supply because substantially all of the water returns without delay to the source of supply, causing little or no disruption in stream conditions.

Concerning ground water use, existing law does not require a permit for a well producing water at less than 35 gallons per minute not to exceed a total volume of 10 acre-feet per year. This proposal would not change this situation so that wells under this production limit could continue to be drilled for any purpose.

It should also be noted that including ground water in the closure as proposed would not allow city and towns to obtain a permit for new wells for drinking water or other municipal uses. Municipalities will still be able to purchase or condemn existing water rights to expand domestic water supplies.

The closure and the exemptions will be reviewed by the ongoing basin-wide committee after five years, and necessary changes will be recommended to the legislature. The closure can be modified, extended, or ended by action of the legislature after the review.

B. ONGOING WATER AND PLANNING AND MANAGEMENT MECHANISM

The legislature should provide for an ongoing basin water planning and management mechanism including a basin-wide committee and watershed committees. The mechanism should not be vested with legal authority to compel any action by any water user or water interest. Its purposes should, instead, include:

1) Providing a forum for all interests to communicate about water issues;

2) Providing education about water law and water management issues;

3) Identifying short-term and long-term water management issues and problems and alternatives for resolving them;

4) Facilitating resolution of water related disputes via consensus-based collaborative processes including mediation;

5) Providing coordination with other basin management and planning efforts, such as county drought committees and the Tri-State Section 525 Water Quality Implementation Council;

6) Advising the government agencies about water management and permitting activities;

7) Consulting with the basin's local governments; and

8) Reporting periodically to some entity with water management authority such as the legislature.

For the first two years the members of the basin-wide committee will be appointed by the Director of the Department of Natural Resources and Conservation. Members will include representatives of the following local basin water interests: agriculture organizations; conservation districts; environmental organizations; industries; local, state, and federal governments; reservation applicants; utilities; and water user organizations. The ongoing basin-wide committee will recommend modifications of the selection process to the 1997 Legislature if another method is identified that better ensures local input to member selection while maintaining the broad range of member representation of basin water users. The basin-wide committee will continue to decide the membership of watershed committees.

C. PROTECTION OF EXISTING WATER RIGHTS

Any action taken by the legislature or any executive branch agency in response to this plan must be predicated on preserving existing water rights.

D. WATER ADJUDICATION SYSTEM

The Montana Reserved Water Rights Compact Commission should make the U.S. Forest Service a high priority among the federal agencies in actively negotiating a reserved water rights compact. Further, if the commission takes a geographical approach to the Forest Service's reserved water rights claims, the Rock Creek drainage should be studied as a test case of a basin where Forest Service claims are downstream of state-based private water rights claims.

E. WATER STORAGE

1. Structural Storage

The ongoing basin water planning and management mechanism will continue the investigations of the priority new and expanded existing water storage sites identified in the Upper Clark Fork River Basin Steering Committee study of possible increases of water storage in the basin. In particular, it will identify the potential beneficiaries of and a funding mechanism for these priority sites.

The Steering Committee was unable to consider and make recommendations concerning the existing Georgetown-Storm-Silver Lake system because ownership of the facilities and water rights associated with it were clouded by litigation. When this litigation is resolved, this system should be studied to determine if it contains unused storage capacity that might benefit basin water users.

The ongoing basin water planning and management mechanism should also create some means to examine additional storage options in the basin as they arise.

2. Non-Structural Storage

The ongoing basin water planning and management mechanism will continue to support the Flint Creek return flow study so that water users in the watershed can better understand and manage return flows to benefit in-stream and diversionary water uses. The ongoing mechanism should promote similar studies of the role of return flows in watersheds throughout the basin.

F. WATER QUALITY

1. Toxic Metals and Stream Dewatering

Proposed new storage or other management activities that could change the flow regime in the Clark Fork River must incorporate careful consideration of impacts on water quality and, particularly, toxic metal concentrations.

2. Nutrient Pollution

The ongoing basin planning and management mechanism will:

Upper Clark Fork River Basin Steering Committee Work Plan

When Are Things Happening?

The Steering Committee has adopted a work plan and timeline to guide the preparation of the water management plan. The following table which will be updated and included in subsequent issues of *The Clark Fork Water News* summarizes the progress to date towards completion of the management plan. While all Steering Committee meetings are open to the public, some activities depend directly on the involvement of upper Clark Fork water users. These activities are printed in bold italics.

ACTIVITY	DURATION	DATES	STATUS
1. Develop Work Plan	4 months	Sept. 1992-Jan. 1993	Complete
2. Steering Committee & Water Shed Committee Deliberations on Management Plan	1.5 years	Jan. 1993-June 1994	Ongoing
A. Form & Activate Water Shed Committees	3 months	Jan.-March 1993	Complete
B. ***Water Shed Committee Deliberations***	1 year	March 1993-March 1994	Ongoing
C. Complete Steering Committee Deliberations on Draft Management Plan	3 months	April-June 1994	Complete
3. Prepare Draft Management Plan	2 months	July-Aug. 1994	Complete
4. ***Public Comment Period on the Draft Management Plan, Including Public Hearings***	8 weeks	Sept. 5-Oct. .28, 1994	
5. Prepare Final Management Plan and Any Necessary Implementing Legislation	6 weeks	Oct. 31-Dec. 9, 1994	
6. BNRC and DNRC Review of Final Management Plan	2 weeks	Nov. 28-Dec. 9, 1994	
7. Print Final Management Plan	3 weeks	Dec. 12-30, 1994	
8. Present Final Management Plan to Governor, Legislature and the Public		Dec. 31, 1994	

Draft Hearing Schedule

The Steering Committee has scheduled hearings in seven basin communities to obtain the public's response to the draft water management plan. Each of the seven will be held at 7:00pm.

DAY & DATE	LOCATION
Tuesday, September 27	Drummond Community Hall
Wednesday, September 28	Deer Lodge Community Center
Tuesday, October 4	Granite County Museum, Philipsburg
Wednesday, October 5	ARCO Conference Center, 307 East Park St., Anaconda
Thursday, October 6	Avon Community Center
Tuesday, October 11	Lubrecht Forestry Station, Greenough
Wednesday, October 12	Missoula City Library Conference Room, Missoula

a. Encourage and assist other basin communities that have not already done so to ban the sale of phosphate detergents;

b. Continue to encourage and assist the City of Deer Lodge, the National Park Service, and the Department of Health and Environmental Sciences in implementing a project to use the effluent from the Deer Lodge Sewage Treatment Plant to irrigate nearby land rather than discharge it to the Clark Fork River;

c. Encourage other basin communities such as Butte, Galen, Warm Springs, Drummond, and Missoula to evaluate alternatives to direct discharge of their municipal waste water; and

d. Encourage Department of Natural Resources and Conservation to resolve water rights questions surrounding land application of sewage treatment plant effluent.

3. Non-Point Pollution Strategy

The ongoing basin planning and management mechanism will continue to encourage upper Clark Fork basin watershed committees to participate in the development of voluntary, local non-point pollution control strategies and will provide assistance when requested and able to do so.

G. FISHERY

The ongoing basin planning and management mechanism will continue to provide a communications link through which the Department of Fish, Wildlife, and Parks (DFWP) and willing landowners can discuss the opportunities for leasing water, for cooperative storage projects, for implementing the trial in-stream flow program outlined in this plan, or for otherwise arranging to relieve dewatered stream sections. DFWP should continue to seek willing landowners to help solve dewatering problems to improve stream habitat improvement on private land. It will also continue to utilize River Restoration Program funds (earmarked fishing license revenue) and fish kill mitigation money (ARCO settlement in 1989 fish kill) to fund habitat improvement projects on private land.

H. IN-STREAM FLOW PILOT STUDY

The legislature should authorize a ten year in-stream flow pilot study in the Upper Clark Fork River Basin. The study will test allowing a public or private entity to purchase, lease, or receive by donation an existing water right from a willing seller, convert it to an in-stream right through the water rights change process, and then protect it against appropriation by junior users. To obtain and protect an instream right in a specific stream reach, an entity would be required to proceed through the water rights change process and demonstrate that no other water right holder would be adversely affected by the change. The pilot study will have a termination date.

The legislature should change state law so that the cost of objecting by prevailing parties in all water rights change processes will be paid by the nonprevailing party.

I. WATER RESERVATIONS

The legislature should continue the current suspension of Granite Conservation District's (GCD) and the Department of Fish, Wildlife and Park's (DFWP) reservation applications during the period of the proposed basin closure. The May 1, 1991, priority date for these applications previously established by the legislature should remain intact during this period. If a future basin closure review recommends either that the closure be terminated or that the exemptions be significantly modified, GCD and DFWP should retain the right to renew their reservation applications at the end of the closure period without loss of the May 1, 1991 priority date. Their renewals could include modification to their original applications if warranted by changed circumstances without loss of the May 1, 1991, priority date so long as the water quantity to be reserved does not exceed the amount in the original reservation applications and the location of the water to be reserved is not changed from the original application.

WE HOPE TO HEAR FROM YOU!

Please send your comments, criticisms, or suggestions concerning the draft plan recommendations to:

Upper Clark Fork River Basin Steering Committee
c/o Gerald Mueller
7165 Old Grant Creek Road, Missoula, MT 59802

Single copies of the draft water management plan can be obtained by sending the following form to the Steering Committee at the same address:

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City/State/Zip _____

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THE UPPER CLARK FORK Water News

FEBRUARY 1995
NUMBER 5

River Plan Released

The Upper Clark Fork River Basin Steering Committee has submitted to Governor Racicot and the Montana Legislature the *Upper Clark Fork River Basin Water Management Plan*. This fifth edition of the newsletter contains a summary of the recommendations included in that recently submitted management plan. Legislation which would implement the plan will be considered by the current session of the Montana Legislature. This newsletter edition also summarizes the public involvement in creating the draft plan which led to the adoption of the management plan by the Steering Committee.

In its cover letter to the Governor and Legislators, the Steering Committee wrote that this plan:

> . . . is the culmination of over three years of a successful effort to listen to, understand, and accommodate the diverse interests of the basin's water users. This plan does not resolve all of the basin's water issues. But it is an important start at water planning and management at the local basin level. After three years and completion of the first plan, the Steering Committee remains convinced that water planning and management ***at the local basin level*** is necessary to secure both the economy and quality of life that we want for ourselves and our children.

Copies of the full plan are available at the following locations. Single copies can also be requested by returning the mail-in insert found inside.

Anaconda Public Library
Butte Public Library
Deer Lodge Public Library
Helena Public Library
Lubrecht Forestry Center
Missoula Public Library
Montana State Library
Montana Water Center at MSU
Granite, Deer Lodge, Lewis & Clark, Missoula, Powell, and Silverbow County Extension Offices
North Powell Conservation District
Lewis & Clark Conservation District
Granite Conservation District
Deer Lodge Valley Conservation District
Missoula County Conservation District

Upper Clark Fork River Basin Water Management Plan Recommendation Summary

A. Basin Closure

The legislature should close the upper Clark Fork River Basin to the issuance of most new surface and ground water use permits and reservations. The area closed should include the entire Clark Fork and Blackfoot River drainages above Milltown Dam. The closure is not intended to affect water uses that do not require a water permit. It should be conditioned so that it would not preempt new permits for the development of:

1) Storage for beneficial uses;
2) Stock water;
3) Ground water for domestic use;
4) Expansion of zero-consumptive hydropower generation at existing projects; and
5) Superfund remedies, except for dilution, required by the U.S. Environmental Protection Agency for Superfund sites designated as of January 1, 1994.

"Domestic use" means use of water common to family homes, including use for culinary purposes, washing, drinking water for humans and domestic pets, and irrigation of a lawn or garden of less than 1 acre, not to exceed a total of

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3.5 acre-feet per year. The term includes municipal uses for expanded domestic use but does not include commercial or industrial use.

The exemption for Superfund remedies should expire after five years on January 1, 2000, so that applications for new water rights permits for this purpose would have to have been filed on or before December 31, 1999.

The closure and the exemptions will be reviewed by the ongoing basin-wide committee every five years, and necessary changes will be recommended to the legislature. The closure can be modified or ended by action of the legislature after the review.

B. Ongoing Water Planning and Management Mechanism

The legislature should provide for an ongoing basin water planning and management mechanism including a basin-wide committee and watershed committees. The mechanism should *not* be vested with legal authority to compel any action by any water user or water interest. Its purposes should, instead, include:

1) Providing a forum for all interests to communicate about water issues;
2) Providing education about water law and water management issues;
3) Identifying short-term and long-term water management issues and problems and alternatives for resolving them;
4) Facilitating resolution of water related disputes via consensus-based collaborative processes including mediation;
5) Providing coordination with other basin management and planning efforts, such as county drought committees and the TriState Section 525 Water Quality Implementation Council;
6) Advising the government agencies about water management and permitting activities;
7) Consulting with the basin's local governments; and
8) Reporting periodically to some entity with water management authority such as the legislature.

For the first two years the members of the basin-wide committee will be appointed by the Director of the Department of Natural Resources and Conservation. Members will include representatives of the following local basin water interests: agriculture organizations; conservation districts; environmental organizations; industries; local, state, and federal governments; reservation applicants; utilities; and water user organizations. The ongoing basin-wide committee will recommend modifications of the selection process to the 1997 Legislature if another method is identified that better ensures local input to member selection while maintaining the broad range of member representation of basin water users. The basin-wide committee will continue to decide the membership of watershed committees.

C. Protection of Existing Water Rights

Any action taken by the legislature or any executive branch agency in response to this plan must be predicated on preserving existing water rights, permits and certificates in effect as of July 1, 1995.

D. Water Adjudication System

The Montana Reserved Water Rights Compact Commission should make the U.S. Forest Service a high priority among the federal agencies in actively negotiating a reserved water rights compact. Further, if the commission takes a geographical approach to the Forest Service's reserved water rights claims, the Rock Creek drainage should be studied as a test case of a basin where Forest Service claims are downstream of state-based private water rights claims.

E. Water Storage

1. Structural Storage

The ongoing basin-wide committee will continue the investigations of the priority new and expanded existing water storage sites identified in the Upper Clark Fork River Basin Steering Committee study of possible increases of multiple use water storage in the basin. In particular, it will identify the potential beneficiaries of and a funding mechanism for these priority sites.

The Steering Committee was unable to consider and make recommendations concerning the existing Georgetown-Storm-Silver Lake system because ownership of the facilities and water rights associated with it were clouded by litigation. When this litigation is resolved, this system should be studied to determine if it contains unused storage capacity that might benefit basin water users.

The ongoing basin-wide committee should also create some means to examine additional storage options in the basin as they arise.

2. Nonstructural Storage

The ongoing basin-wide committee should continue to support the Flint Creek return flow study to permit better understanding and management of return flows to benefit in-stream and diversionary water uses. The ongoing mechanism should promote similar studies of the role of return flows in watersheds throughout the basin.

F. Water Quality

1. Toxic Metals and Stream Dewatering

Proposed new storage or other management activities that could change the flow regime in the Clark Fork River must incorporate careful consideration of impacts on water quality and, particularly, toxic metal concentrations.

2. Nutrient Pollution

The ongoing basin planning and management mechanism will:

a. Encourage and assist other basin communities that have not already done so to ban the sale of phosphate detergents;
b. Continue to encourage and assist the City of Deer Lodge, the National Park Service, and the Department of Health and Environmental Sciences (DHES) in implementing a land application project, and encourage other communities such as Butte, Galen, Warm Springs, Drummond, Philipsburg, and Missoula to evaluate alternatives to direct discharge of their municipal waste water; and
c. Encourage Department of Natural Resources and Conservation (DNRC) to resolve water rights questions surrounding land application.

3. Non-Point Pollution Strategy

The ongoing basin-wide planning and management committee will continue to encourage upper Clark Fork Basin watershed committees to participate in the development of voluntary, local non-point pollution control strategies and will provide assistance when requested and able to do so.

G. Fishery

The ongoing basin-wide committee and watershed committees will continue to provide a communications link through which the Department of Fish, Wildlife, and Parks (DFWP) and willing landowners can discuss the opportunities for leasing water for cooperative storage projects, for implementing the trial in-stream flow program outlined in this plan, or for otherwise arranging to relieve dewatered stream sections. The DFWP should continue to seek willing landowners to help solve dewatering problems to improve stream habitat on private land. It will also continue to utilize River Restoration Program funds (earmarked fishing license revenue) and fish kill mitigation money (ARCO settlement in 1989 fish kill) to fund habitat improvement projects on private land.

H. In-Stream Flow Pilot Study

The legislature should authorize a ten year in-stream flow pilot study in the upper Clark Fork River Basin. The study will test allowing a public or private entity to lease an existing water right for instream flows from a willing lessor, or allowing an existing right holder to convert an existing right to an in-stream use, and then protect the lease or conversion against appropriation by junior users for the period of the study. To obtain and protect a lease for in- stream flows or to convert an existing right to an in-stream use in a specific stream reach, an entity would be required to proceed through the water rights change process and demonstrate that no other water right holder would be adversely affected by the lease or conversion. The pilot study will have a termination date.

The legislature should change state law so that the cost of objecting by prevailing parties in ***all*** water rights change processes will be paid by the non-prevailing party.

I. Water Reservations

The legislature should continue the current suspension of Granite Conservation District's (GCD) and the Department of Fish, Wildlife and Park's (DFWP) reservation applications until such time as the basin closure is significantly modified or terminated. The May 1, 1991 priority date for these applications previously established by the legislature should remain intact during this period. If a future basin closure review recommends either that the closure be terminated or that the exemptions be significantly modified, the GCD and DFWP should retain the right to renew their reservation applications at the end of the closure period without loss of the May 1, 1991 priority date. Their renewals could include modification to their original applications if warranted by changed circumstances without loss of the May 1, 1991 priority date so long as the water quantity to be reserved does not exceed the amount in the original reservation applications and the location of the water to be reserved is not changed from the original application.

Draft Plan Public Involvement

The Steering Committee adopted the management plan after extensive outreach to the basin's water users. Public meetings were held in seven basin communities, Drummond, Deer Lodge, Anaconda, Philipsburg, Avon, Greenough, and Missoula, to introduce the public to the draft plan and to receive their comments on it. Attendance at the meetings is summarized in the table below:

A total of 178 public comments were recorded on newsprint at the meeting. In addition, the Steering Committee received 58 written comments on the draft plan from the public after the meetings.

Each Steering Committee member received a complete set of the comments recorded at the public meetings as well as the subsequent written comments.

	MEETING ATTENDANCE		
LOCATION	PUBLIC	STEERING COMMITTEE	TOTAL
Drummond	37	10	47
Deer Lodge	33	15	48
Philipsburg	21	9	30
Anaconda	31	9	40
Avon	13	8	21
Greenough	26	7	33
Missoula	52	12	64
Totals	**213**	**70**	**283**

Upper Clark Fork River Basin
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THE UPPER CLARK FORK Water News

Volume 2 Number 1
February 1996

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In This Issue

In December 1994, the Upper Clark Fork River Basin Steering Committee completed and sent to Governor Racicot and the Legislature the *Upper Clark Fork River Basin Water Management Plan*. This issue reports on the Legislature's response to the *Plan*, the reappointment of the Steering Committee, and the Steering Committee's proposed 1995–96 work plan to carry out the *Plan's* recommendations and its legislative mandate. It also introduces the basin's in-stream flow water leasing pilot program and considers the connection between water quality and quantity.

Montana Legislature Adopts Plan Recommendations

The 54th Session of the Montana Legislature responded positively to the recommendations in the *Upper Clark Fork River Basin Water Management Plan* published in December 1994. Almost all of the recommendations requiring legislative action were enacted into law in Senate Bill 144. Key provisions of S.B.144 addressed:

Basin Water Rights Closure: The upper basin, including the Clark Fork mainstem from its headwaters to the Milltown Dam and the Little Blackfoot, Flint Creek, Rock Creek, and Blackfoot watersheds, was closed to the issuance of most new surface water rights. Specific water uses were exempted from the closure. New water rights can still be obtained for appropriations of ground water, limited Superfund remedies, stock water, water storage, and new power generation at existing dams provided that no additional water is consumed. Existing water rights are not affected by the closure. The closure has no ending date, but the Upper Clark Fork Steering Committee must review the closure at least every five years and recommend necessary changes to the legislature.

Reauthorization of the Steering Committee: The DNRC Director was authorized to reappoint the members of the Steering Committee (see article below). The Steering Committee was directed to:

- ☐ Make recommendations to the 1997 legislature concerning the representation, terms, and the method of appointing Steering Committee members;
- ☐ Prepare and submit a report evaluating the Upper Clark Fork River basin instream flow pilot program;
- ☐ Prepare and submit a report concerning the relationship between surface water and ground water and the cumulative impacts of ground water withdrawals from each subbasin;
- ☐ Provide a forum for all interests to communicate about water issues;
- ☐ Provide education about water law and water management issues;
- ☐ Identify short-term and long-term water management issues and problems and alternatives for resolving them
- ☐ Identify the potential beneficiaries of and a funding mechanism for new and expanded water storage sites;
- ☐ Assist in facilitating resolution of water related disputes;
- ☐ Provide coordination with other basin management and planning efforts;
- ☐ Advise government agencies about water management and permitting activities;
- ☐ Consult with the basin's local governments; and
- ☐ Report periodically to some entity with water management authority such as the legislature.

Instream Flow Pilot Study: A ten year pilot study was authorized in the upper Clark Fork River Basin that allows anyone to lease water or any existing water right holder to temporarily change his or her water right to maintain and enhance streamflows to benefit the basin's fishery resource. The state district court is directed to award legal fees to the prevailing party in a water right or change hearing before the court regarding upper Clark Fork River Basin water rights.

Water Reservations: The suspension of the water reservation process enacted by the 1993 Legislature was continued indefinitely. Applications for water reservations in the upper Clark Fork Basin may not be processed or approved. Granite Conservation District and the Montana Department of Fish, Wildlife and Parks maintain a reservation priority date of May 1, 1991 in the event that the suspension is lifted.

STEERING COMMITTEE

1995-1996 Work Plan

The *Upper Clark Fork River Basin Water Management Plan* set forth two goals: (1) To balance all of the basin's beneficial water uses; and (2) To provide for continued planning and management of the waters of the upper Clark Fork River Basin rooted at the local level. To accomplish these goals and its legislative, the Steering Committee has developed the following work plan to guide its activities through the end of next year.

TASK	IMPLEMENTOR	SCHEDULE
1. Adopt Steering Committee ground rules	Steering Committee	Finalize by December 1995
2. Adopt a work plan	Steering Committee	Completed draft by December 1995; review in Watershed Steering Committees by February 1996
3. Educate Steering Committee and basin about water law and basin hydrology, water uses and management systems, using the following mechanisms or steps:		On-going
a. *The Upper Clark Fork Water News;*	Steering Committee Newsletter Committee	
b. Compile on-going education activities and resources;	Steering Committee & Montana Water Course	
c. Know your watershed meetings conducted jointly with the Montana Water Course; and	Steering Committee & Montana Water Course	
d. Seminar and newsletter article on water rights for realtors.	Realtor water rights seminary	
4. Design and implement groundwater study.	Steering Committee	Complete by November 1996
5. Continue storage studies and develop a storage funding mechanism through a storage committee and the watershed committees.	Steering Committee Storage Committee & Watershed Committees	Complete by November 1996
6. Improve water management during water short years, i.e. identify where water is needed, sources of water, and an allocation mechanism or mechanisms.	Steering Committee and Watershed Committees	Complete by November 1996
7. Conduct site specific water projects, e.g. Deer Lodge sewage effluent land application project, Butte area water quantity and quality and water use/land use interface projects, & water leasing opportunities.	Watershed Committees	Ongoing
8. Develop a model process for instream flow leases.	Steering Committee Leasing Subcommittee & Watershed Committees	Complete by June 1996
9. Water situation inventory–problems and opportunities in each watershed.	Watershed Committees	On-going
10. Prepare report on future organization and funding of the Steering Committee.	Steering Committee	Complete by November 1996
11. Updates & information exchange concerning: nutrient controls, Seven-up Pete mine, Superfund & voluntary cleanup activities.	Steering Committee members	Ongoing
12. Review basin water rights administration and adjudication.	Steering Committee with assistance from DNRC	Complete by November 1996
13. Consult with basin local governments	Steering Committee	Ongoing
14. Respond to requests for consultations with other basins	Steering Committee	Ongoing
15. Develop consensus legislative recommendations.	Steering Committee	Complete by November 1996

THE WATER QUALITY–QUANTITY CONNECTION

Gary Ingman
January 1996

The 1991 Montana Legislature directed the head of the Department of Natural Resources and Conservation to establish the Upper Clark Fork Steering Committee. Its charge: develop a water management plan that "considers and balances all beneficial uses of water in the upper Clark Fork River basin." In 1995, the Legislature approved, with some changes, the committee's plan. The plan attempts to define current and anticipated beneficial uses of water in the basin while also seeking ways to better protect and balance competing demands on the resource.

The effort focused primarily on developing alternatives that help ensure adequate water remains in-stream during critical periods, so that a variety of beneficial uses–from irrigation to hydropower to fishery protection–can be supported. The approved plan examines opportunities for increasing water storage, closes the basin to new water-use applications for surface waters and allows water rights to be leased for in-stream flows.

Though the amount of water in the Clark Fork and its tributaries unquestionably influences the ability of the streams to physically support beneficial uses, streamflows also significantly effect water quality. Streamflows, then, can also dictate whether a stream supports beneficial uses that need a certain quality of water. The final Clark Fork Plan attempts to better recognize this relationship.

Most surface waters in the upper Clark Fork basin are classified "B-1" in the state's water quality standards. This means their quality must be maintained as suitable for these beneficial uses: drinking, cooking and food processing after conventional treatment; bathing, swimming and recreation; growth and reproduction of trout and associated aquatic life; waterfowl and furbearers; and agricultural and industrial water supplies. Each use requires minimum levels of water quality as well as quantity. The amount needed for water quality might not be sustained if adequate streamflows are not available during critical times. This is often the case in the Clark Fork when seasonal water shortages result in violations of water quality standards and impairment of beneficial uses.

Below are several ways streamflow volume affects water quality and beneficial uses in the upper Clark Fork River.

HEAVY METALS

Much of the upper river and the headwater tributary Silver Bow Creek are seriously polluted with heavy metals from historical mining and smelting. Most water uses are at least partially impaired because high levels of copper, zinc, cadmium, lead and arsenic can be toxic at certain levels to humans, livestock, wildlife, fish and crops.

The overall severity of the metals pollution in stream miles affected, frequency and magnitude is moderated by in-flows from cleaner tributaries. In particular, the Little Blackfoot River, Rock Creek and the Big Blackfoot River dilute metals concentrations, enhancing water quality downstream in the Clark Fork. In the Clark Fork's headwaters, adequate streamflows are highly desirable from January through April to guarantee adequate dilution of poor-quality discharges from the Warm Springs treatment ponds on Silver Bow Creek. However, some high flows in the upper river can harm water quality by eroding mining tailings that have been deposited on streambanks.

NUTRIENTS

High concentrations of nitrogen and phosphorus prevail throughout much of the upper Clark Fork River. These nutrients can "fertilize" algae that are attached to the streambottom. High algae densities impair uses of the river such as irrigation and recreation, and cause violations of state aquatic-life standards for dissolved oxygen. Nutrient sources include municipal wastewater discharges and runoff from agricultural and timber lands.

The algae problem is most acute during the optimal growing conditions of summer. It is compounded by low streamflows, which increase water temperature, promote plant growth and reduce the effects of dilution. There is a direct relationship between declining summer streamflows and increasing nutrient concentrations and algae problems downstream from wastewater discharges.

WATER TEMPERATURE

Growth and propagation of trout and other aquatic life in the Clark Fork River and its tributaries are affected by water temperature, which is influenced by streamflows. High summer water temperatures reduce feeding rates of trout. Sustained temperatures above 67°F. can be lethal. High temperatures also reduce how much oxygen is dissolved in water, and they increase algal growth, creating potential for additional stress on fish. Water temperatures are a problem in chronically dewatered reaches of the Clark Fork, especially above its confluence with Rock Creek.

DISSOLVED OXYGEN

Trout and the insects they feed on need adequate amounts of dissolved oxygen in the water column. Oxygen from the atmosphere is dissolved in water, and concentrations of it are influenced by water temperature (cold water holds more), aeration rates, the physical features of a stream (swift streams dissolve more oxygen than tranquil streams), and depletion by oxygen-demanding wastes or aquatic plants. Low levels of dissolved oxygen and violations of state standards are not uncommon in the river above the Rock Creek confluence during mid-summer.

Low dissolved oxygen concentrations are associated with the river's nutrient/algae and temperature problems. High densities of algae can deplete dissolved oxygen in the water column at night (algae use oxygen at this time). High water temperatures also reduce the amount of oxygen that can be dissolved. And dewatered streams, because they are often sluggish and have limited surface areas, have reduced capacity to dissolve oxygen. Consequently, streamflow levels in the Clark Fork have a direct bearing on the river's ability to support fish and other aquatic life.

Water Quality-Water Quantity Integration

Nearly all beneficial uses are affected by streamflow-influenced water quality. Impacts can include seasonal limitations for specific water uses and increased costs for water treatment or irrigation system maintenance. Montana water law includes few safeguards for adequately protecting water quality from reduced streamflows or over-appropriation of water. Wastewater discharge permits authorized by the state" are based on a so-called "7-Q-10" streamflow. This is the statistically calculated flow expected to be sustained for 7 consecutive days no more than once every 10 years. Wastewater discharges that are allowed when streamflow conditions are lower than the 7-Q-10 level can violate water quality standards and harm beneficial uses. Streamflows in the upper Clark Fork fall below the 7-Q-10 level more frequently than every 10 years.

When streamflow depletion produces frequent violations of water quality standards, the state must develop a process that allocates discharges. Calculations are made to determine acceptable loads of various pollutants in different stream reaches. These loads (known as Total Maximum Daily Loads, or "TMDLs") are then allocated among municipal, industrial and agricultural sources. The sources are expected to comply with their allocations so that water quality can be restored. The TMDL process helps ensure compliance with water quality standards, and it can mean pollution sources have to employ new pollution control or wastewater treatment technologies. Voluntary TMDL limitations are currently being negotiated among municipal and industrial sources in the Clark Fork basin.

Montana water-use law was amended by the 1991 Legislature to help ensure that new water use permits, or changes of existing permits, do not harm water quality. But the changes have little effect on existing conditions in the upper Clark Fork basin.

The Upper Clark Fork Steering Committee and its subcommittees will continue evaluating ways to address water quality problems created by depletion of stream flows. Among the items the committee has tackled, or will continue to examine, are 1) using discharges from wastewater treatment plants for irrigation instead of putting them in the river; 2) reducing nutrient impacts through regional or local prohibitions on the sale of phosphate detergents; 3) increasing streamflows during summer with in-stream flow leases, increased storage and water conservation; 4) reducing sources of polluted runoff; 5) studying whether closures on some new groundwater use-permits can better protect hydrologically connected surface waters; and 6) resolving disputes among water users through committees of local users.

The complexity of the relationship between water quantity and water quality demonstrates the need for integrated, basin-wide water planning in the Clark Fork watershed. And like the old adages of ecosystem science – "Everything is connected to everything else" and "There's no such thing as a free lunch" – imply, the variables of quality and quantity are inseparable. Addressing this interdependence is a major challenge of the upper Clark Fork's citizens.

Clark Fork Instream Flow Leasing Pilot Program

Bruce Farling

December 1995

How to maintain adequate streamflows for fish while also protecting water rights has long been a contentious topic in Montana. Yet in 1995 the Upper Clark Fork Steering Committee and the Montana State Legislature took small but important steps towards reducing the friction that sometimes occurs between anglers and ranchers over water use.

Several elements of the Clark Fork River Basin Water Management Plan required approval by the 1995 Legislature. One component was a 10-year pilot program that allows landowners to lease water rights to private and public interests for in-stream flow protection. This legislative change parallels – with a few key differences – another bill passed overwhelmingly in 1995 authorizing the leasing of water rights to private parties for in-stream flows anywhere in the state. Montana's Department of Fish, Wildlife and Parks has been allowed to lease water for in-stream flows since 1989. The only lease it has in the upper Clark Fork basin is in the Blackfoot drainage.

The reason the Clark Fork pilot program passed (and the statewide authorization, too) was that it doesn't tinker with the fundamental principle of Montana water law – the prior appropriation doctrine, which says water is allocated on the basis of "first in time, first in use." In other words, you can't lease water or leave it in-stream if you don't have a right to it. The Clark Fork program also clearly says that leases cannot occur if they adversely affect the use of water by another legitimate water-right holder.

The basics of the program are:

- ☐ It applies only to existing rights.
- ☐ Anyone with a valid water right can leave the water in stream, or lease it to another party – both private and public – who wants to maintain flows for fish.
- ☐ Water can only be left in-stream, or leased to others, if it doesn't adversely affect other water right holders.
- ☐ Leaving water in-stream requires water-right holders to apply to the Department of Natural Resources and Conservation for a "change of use." This is no different than what currently occurs when, say, irrigation water is going to be changed to industrial use, or when a point of diversion is moved.

- ☐ Other water right holders can object to the in-stream flow change during the change-of-use process.
- ☐ Only the amount of water historically consumed may be leased beyond the historical point of diversion.
- ☐ Applicants for the change of use must demonstrate it will benefit fish, and the lessee/lessors must prepare a plan for DNRC approval on how the water will be measured.
- ☐ DNRC can revoke the in-stream flow change if other water right holders provide credible evidence they are being harmed.
- ☐ Under no circumstances will water rights be sold for in-stream flows (the law allows them to be sold for other purposes, such as agricultural, industrial or municipal use).
- ☐ The program expires in 10 years (Jan. 1, 2005), though a lease can be renewed before that date.
- ☐ The Upper Clark Fork Steering Committee must report to the legislature at the end of the pilot period on whether the program should be renewed or modified, and on how it affected water-right holders, fish, recreation and tax values.

Because of the constraints aimed at protecting other water users and alleviating fears that agriculture could be harmed, conservationists and ranchers on the steering committee both agree it's unlikely the program will be widely applied. The program's most likely use will be to leave strategic, small amounts of water in Clark Fork tributaries to take care of a seasonal fishery value. In addition, because of the large role potential objectors have in the process, it will be extremely impractical to initiate in-stream flow leases for streams that are used by many water-right holders. For that reason, Trout Unlimited sees little likelihood of the pilot program being used to maintain flows in main-stem rivers such as the Clark Fork or Little Blackfoot.

A typical application of the program might be to provide water for a few weeks during spawning or migration periods for local trout in a small stream that is used by just a few water-right holders. The goal is to help fish while not asking water users to sacrifice. In fact, leasing can provide a new source of income for a water right holder.

The program's success largely rests on how much it is supported by local water-users. In some drainages it could be an important advance in building bridges among interests who don't necessarily have to be at odds over water.

Upper Clark Fork River Basin Steering Committee

STEERING COMMITTEE REAPPOINTED

Pursuant to S.B.144, DNRC Director Mark Simonich has re-appointed the Upper Clark Fork River Basin Steering Committee. The Steering Committee now has twenty-two members, including several familiar faces and some interesting new ones. New members will be profiled in upcoming issues. The members along with the constituency or area they represent include:

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THE UPPER CLARK FORK
Water News
Volume 2 Number 2
June 1996

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THE UPPER CLARK FORK MANAGEMENT STEERING COMMITTEE

How're We Doing?

Continued planning and management of the waters of the Upper Clark Fork River basin must be rooted at the local level.

The Steering Committee repeatedly reviews this goal and realizes its effectiveness is only measured by how well it represents local basin water users and how well it listens to and acts on local water users' concerns.

In preparing recommendations for the 1997 Legislature, we're interested in hearing from you regarding the representation, terms and method of appointing members to the Steering Committee.

Presently, the Steering Committee has 21 members, whose names, addresses, and telephone numbers are listed on the back page of this issue. A breakdown of their Interests, Occupations, and Organization Affiliations follows here:

Interest/Occupation/Organization	*Number*
Farmers and Ranchers	8
Sportsperson or Environmental Organizations	2
Electricity Utilities/Clark Fork Dam Owners	2
Industry	1
Basin Local Governments	2
State Agencies	3
Federal Agencies	1
State Legislators	4
(1 counted as farmer/rancher)	

Another way of looking at representation is by geographical representation. Below numbers of members (except for state and federal members and those representing utilities) are designated by watershed.

Watershed	*Number*
Upper Clark Fork Mainstem and Tributaries	7
Little Blackfoot	1
Flint Creek	2
Rock Creek	1
Big Blackfoot	2
Lower Clark Fork Mainstem and Tributaries	3

In your view is the present membership representative of the basin's water users, interests and managers?

Presently, members are appointed by the Director of the Department of Natural Resources and Conservation and do not have terms. Should someone else make the appointments, and if so, who and for what terms?

You are the local people who have an interest in the basin. We want to hear from you. Write to us with your ideas and recommendations.

GROUNDWATER

One of the major tasks of the Upper Clark Fork Steering Committee is to review groundwater regulation. Since 1991, the Upper Clark Fork basin has been closed to most new surface water uses. With little surface water available, groundwater will likely be the source for new water development. In considering groundwater development, there are a number of competing considerations.

The first is protection of existing surface water rights. Groundwater is generally connected to surface water; the question is how

closely. DNRC currently cannot issue permits for groundwater wells that are immediately adjacent to a stream and instantly affect surface water flows. Permits are issued, however, for wells that may affect surface water flows as long as the effect is not instantaneous. Cumulatively, future groundwater use may reduce stream flows relied on by surface water users with senior priority dates.

Balanced against the need to protect surface water is a desire not to unduly restrict economic growth. Most new business enterprises in Montana need water, and groundwater is often the only available choice. Groundwater is also relied on for future drinking water supplies.

On top of these competing considerations is a general lack of site specific knowledge concerning groundwater aquifers and their interaction with surface water. Since groundwater aquifers act as natural storage, some amount of groundwater can be diverted without impacting stream flows. Without specific information, it is difficult to make informed decisions concerning groundwater permitting. The steering committee has started to fill this information gap by supporting the Flint Creek Return Flow Study, creating a Geographic Information System (GIS) for the basin, and successfully encouraging the Montana Groundwater Characterization Program to designate the Upper Clark Fork as the next basin for in-depth study.

The steering committee has also looked at the approaches of other Western states. These approaches range from a legal presumption that all groundwater is hydrologically connected to surface water, to recognizing no connection whatsoever. Many states prohibit junior groundwater uses that adversely affect senior surface water rights. Enforcement of these prohibitions differ from state to state. In some states, groundwater regulations are enforced solely by the state agency. In other states such as California, groundwater is largely regulated through local basin management entities.

The State of Idaho's use of local groundwater boards is particularly interesting. In Idaho, as in Montana, the state water agency is responsible for issuing new groundwater permits. A local groundwater board, however, decides disputes between surface and groundwater users. When a senior surface water user files a complaint claiming adverse affect from junior groundwater uses, it is referred to a local groundwater board.

The local groundwater board has three members: a qualified engineer or geologist appointed by the local district judge, the director of the state water department, and a local irrigator who is appointed by the other two. Other than the state department director, none of the members can be state employees. The local board holds hearings and rules on complaints. If the board determines there is adverse affect, it can order junior groundwater users to cease their use indefinitely or during certain periods, or may require the replacement of surface water to make up for the groundwater use. If any party is dissatisfied with the local board's ruling, they can appeal and have another hearing before the district court.

This is one of many approaches being considered by the steering committee. If you have any suggestions or questions concerning groundwater, please contact any member of the steering committee or its facilitator.

Holly Franz

One Member's View

Water Planning and Management—An Upstream Swim for Regulators?

Montanans are making ever-increasing demands on their water resources, but our water law does not appear to be changing to meet these new demands.

Mining interests press state government for more lenient water quality standards in their quest to expand mining activities in Montana. Agricultural interests with modern machinery can place more and more ground under cultivation with less effort, increasing the demand for irrigation water. Recreationists are placing ever-increasing demands for improved fisheries and expanded boating opportunities.

A full thirty pages of the Index in the Montana Code Annotated (MCA)—the laws of Montana—are devoted to water law. Perhaps no topic is more legislated than water. But a cursory review of that law reveals a surprising paradox. Much is said about water ownership and water quality, but very little about quantity. Research and investigation are revealing more about the vast storage of water in the ground and its relationship to the surface waters. But we have overlooked groundwater and its inter-relationship to surface in Montana law and we must change that.

As the demands for our water change and increase, the problems associated with use, planning and management increase, too. As a member of the Montana legislature, I am struck by the number of problems we should be addressing but are not.

- We have a poor regulatory framework and haphazard, underfunded water enforcement in Montana. If you have a problem with your water, you call a plumber or a lawyer in this state—not a state or county official—to resolve it.
- We presume a surface water right includes the subsurface water within those boundaries without knowing how much subsurface water is involved, how it arrives or where it is found.
- We do not conjunctively manage our groundwater with our surface water.
- We have no formal statewide, or basin-by-basin planning and management system.

• We have no mechanism for establishing local groundwater districts which could function as irrigation districts.

• We do not require all users to determine and guarantee "safe yield" parameters which will match groundwater extraction and re-charge levels.

• We have no solid funding mechanism for water storage projects.

• We have no inventory of return flow data for our surface watercourses.

• We do not recognize groundwater storage as a beneficial use.

• Until just recently we allowed developers to proceed without guaranteeing the availability of water to a subdivision. We now have subdivisions in existence which have no legal water rights, and others with inadequate water supplies. And we have subdivisions in which the septic systems are polluting the water supply.

• We face numerous complexities in "leasing" water for in-stream flow that must be addressed by the legislature, which only recently legalized the concept.

Taken collectively the problems seem insurmountable, but taken individually they seem perfectly manageable if state government begins a methodical approach to dealing with them.

We in state government need to re-think the role of local governing bodies in water management. Historically, the state has been reluctant to delegate control to local governments for fear of creating a hodgepodge of water regulations across Montana, but there appears to be a growing sentiment for increasing local control over water planning and management questions.

State government needs to better research and investigate the relationship between surface and subsurface water. It needs to formalize a planning and management system under which local governments can operate.

State government should begin to assume a more technical and advisory role, it should create incentives to store water, and it should create the funding mechanisms to help accomplish that goal. It must become consistent and predictable about the allowable levels of pollution it will permit and it must get tough on the enforcement end, once fair and enforceable laws are on the books.

State government must get tough with realtors and developers. Realtors must know water law and must fully determine water rights and resources for buyers and sellers. Developers, too, must understand the effects of their activity on water resources and be prepared to demonstrate they are not degrading or beleaguering the water resources associated with their developments.

State government must take the lead and not yield to the special interest groups which arrive in Helena every legislative session with their wishes in hand. Water is one of our most precious resources, and clean water is becoming a scarce commodity, even in Montana. We at the state government level must do everything in our power to plan for the wise use of this resource.

Don Larson

Continuing Education for Real Estate Salespeople

As with many professions licensed by the State of Montana, persons who are licensed real estate brokers and agents must take approved continuing education courses in order to renew their licenses each year.

Selling properties with water rights, especially ranches, requires a special knowledge as to how all existing rights relate to the property being sold or purchased by clients. One cannot make general assumptions about water availability, adequacy of rights, reliability of delivery, or associated costs. These are some of the many elements of water rights that determine the value of the lands and the water associated with them.

Those engaged in real estate must become aware that there is now a special need for a greater awareness of water rights and all their implications. Most water rights in this state are involved in a statewide general adjudication process. This process will determine what those rights are. That final determination may affect certain property values.

At the present time, most continuing education real estate courses do not provide adequate information on the subject of water rights and water law. Most courses are too generalized and lack in-depth examination of the role water rights play in representing the true value of any parcel of real estate.

There are ever increasing problems developing in subdivisions of properties with water rights, and also where waters flow through these properties. Water right transfer certificates, in many cases, are not being filed as required by statute. The existence of water rights and their implications on a property being sold are seldom the subject of any in-depth discussions. These situations can create serious legal problems.

Most importantly, symptomatic problems in basin systems are probably never discussed because there is almost a complete lack of awareness about what these problems are. As we become more sophisticated in discovering the problems around real estate transactions and water rights, we probably will see ever increasing litigation. The defendants and plaintiffs will be the professional real estate salespeople and their clients.

It is a high priority to develop and offer continuing education courses that adequately prepare professional real estate salespeople to deal with transactions that involve water rights. Gaining this knowledge and using it responsibly will benefit everyone—realtors and their clients, be they buyer or seller.

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THE UPPER CLARK FORK
Water News
Volume 2 Number 3
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Emergency & Repair: East Fork Dam

In late June, turbid water was reported flowing from the East Fork Dam in the Rock Creek drainage. By July 4, a sinkhole was discovered. Disaster Emergency Services announced "dire circumstances." Evacuation orders were issued for residents of upper Rock Creek who left their homes with children in tow. Cattle were moved. Mid-creek residents were placed on alert with uncertain understanding of how they would be notified in case of the dam's failure. Lower Rock Creek residents were also on alert. Business as usual came to an immediate halt. Emergency evacuation teams were hastily created and set about gathering basic information while the emergency was in full-swing. The creek was closed to non-essential traffic until July 18.

The dam held, but the event raised many serious questions: What was the cause? What were solution alternatives? Why had there been no emergency evacuation plan prepared ahead of time? How could residents be sure of receiving an early warning during some future possible emergency? What would have been the effects of disaster throughout the Rock Creek drainage? And what about the effects at Milltown Dam's Superfund Site if the East Fork Dam had failed?

Until the near disaster this summer, Rock Creek residents had never had a chance to be involved with the creation and execution of the determining policies for the the dam which holds Rock Creek water for use by Flint Creek Valley irrigators. The first task for Rock Creek residents was to devise and find a way to have an effective voice in the events that affected their lives and livelihoods so dramatically.

Since July, Rock Creek residents have attended scores of meetings and added their comments to discussions about the dam. In an effort to deal with emotion, quash rumor, and obtain real information in an open forum, the landowners have diligently tried to create a positive atmostphere for problem-solving. While the Water Users offered to sponsor public informational meetings, DNRC and the Upper Clark Fork Steering Committee have both answered the need for the on-going forum for public information and participation needed by the Rock Creek residents. The fact that different groups sometimes have different interests at stake makes the situation difficult, but this approach has proved constructive.

As the sinkhole and the dam were investigated, engineers found that, in addition to sinkhole-related problems, water was seeping through the dam's foundation at dangerous levels. Some feel that the sinkhole problem may have been a fortuitous signal. Perhaps the next problem would have been far more serious.

Critical items in the current "design fix" include replacing the full-length of main drain (site of the sinkhole), installing numerous relief wells in the foundation, and reconstructing a clay blanket to prevent excess seepage into the foundation. Monitoring mechanisms will be installed. Rick Bondy, head DNRC engineer, places faith in a number of "redundancies" which are built into the repair design to raise the degree of confidence level in the entire fix.

However, the time frame for reconstruction of the dam is extremely tight–only two months. Completion is targeted for November 4, with a fall-back date of November 15. Because of tight timing and because their risk is so high, the Rock Creek landowners have hired an independent engineering firm (Dames & Moore out of Seattle) to assess the reconstruction plans. Rick Bondy has welcomed the independent review. Landowners genuinely hope that the independent review will confirm the plans generated by DNRC and MSE-HKM, DNRC's contract engineering firm. If not, questions could be raised and landowners expect any inadequacies to be addressed before completion. In addition to questions about the "design fix," important issues of continuing concern are contingency planning (in case weather or other problems invalidate the schedule), obtaining probable maximum flood information, emergency planning, and the addition of an early warning system. Finally, landowners will be seeking a routine method for being advised about annual dam inspections, findings, and follow-through.

The situation at the East Fork Dam this summer had all the

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earmarks of a situation which could disrupt community in serious and long-lasting ways. The reconstructed dam is not complete, it isn't paid for yet, and there is no early warning system. But–so far–the project has moved along as well as it has because of the constructive attitude of people who have put in long hours at their own inconvenience and often at their own expense. Where every group's "stake" has been recognized as legitimate, there has been greater cooperation. We trust that cooperation will continue and that satisfactory results regarding the rebuilding of the dam and the inclusion of Rock Creek residents in future safety reviews will result.

Ellen Knight,
Rock Creek Trust
Suzy Periano,
Rock Creek Resident

EAST FORK RESERVOIR: *A DNRC Perspective*

On June 30, 1996, the East Fork Reservoir was full with a small flow of water passing over the emergency spillway. At this level the reservoir impounds approximately 16,000 acre feet of water and has a surface area of 390 acres. The dam itself is 83 feet high, 1,075 feet in length, and has a crest width of 25 feet.

On this morning, a volunteer campground host from the U.S. Forest Service campgrounds observed silty water discharging from the dam's drainage culvert. Concerned over the affects of this silt on the Rock Creek fishery–one of Montana's Blue Ribbon Trout Streams–the volunteer notified his supervisors. Forest Service personnel recognized that this very small source of silt was not a danger to the fishery; however, they also recognized it as an abnormal operating condition. Immediately, they notified dam owners: State of Montana's Department of Natural Resources and Conservation (DNRC), and operators: Flint Creek Water Users Association (Association).

Also recognizing that the silt was a potential a sign of more serious problems, Don Dee Kennedy, Granite County Sheriff, implemented an around-the-clock inspection and monitoring response. Water releases from the reservoir were significantly increased to relieve pressure behind the dam.

Over the next few days the drainage culvert waters cleared. On July 4, a small area of settling developed on the downstream face of the dam. This settling was the result of a "sinkhole" located over the main drain culvert. Sinkholes are formed when water removes the small, fine-grained materials through erosion processes. The coarser materials are left behind but remain in only partial contact, creating larger pore spaces and voids. This bridging of coarse materials provides an ever-increasing path for water flow. Erosion processes often continue unseen. Eventually the bridged materials collapse downward, creating the sinkhole.

DNRC and the Association were working with Granite County Sheriff and Disaster and Emergency personnel to evaluate conditions and develop a response. The discovery of the sinkhole on July 4 forced the decision to evacuate downstream residents and visitors. This precautionary action was triggered by the combination of limited availability of emergency routes out of Rock Creek and high numbers of recreational visitors in the watershed, together with the uncertain and changing dam conditions.

By the end of July, DNRC had begun an intensive evaluation of dam conditions. The consulting engineering firm of MSE-HKM from Billings, O'Keefe Drilling from Butte, and Mungas Construction Company of Philipsburg were hired to assist with exploratory work. Six monitoring wells were drilled to examine embankment conditions and evaluate water levels and pressures. One exploratory well was drilled near the sinkhole on the dam's face. The other wells were drilled into the dam's core, toe, and foundation materials. Test pits were dug to examine soil conditions in the dam's upstream embankment and on sites upstream but adjacent to the dam.

MSE-HKM assisted DNRC with a detailed evaluation of the dam and provided engineering services. MSE-HKM has had extensive experience with earth dams and had assisted DNRC with the reconstruction of Hyalite Creek, a similar earthen dam near Bozeman.

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Water Leasing for Instream Flow

Historical Perspective

During the early settlement of the West, neither attitudes nor economics contemplated the recreational use of water in streams. Consequently, emphasis was placed on the removal of water for mining, agricultural and other purposes, and no consideration was given to the need for instream flows to maintain fish and wildlife resources. Instead, the legal system evolved the "first in time is first in right" approach in which the removal of water has priority over keeping it in streams. After more than 130 years of water development in Montana, streamflows have been reduced in nearly every river basin. This "dewatering" has had adverse impacts on the fish populations and recreational use of these streams. In recent times, however, recreation, particularly fishing, has attained increasing social and economic importance. There is more emphasis on finding ways to maintain and improve streamflows to provide fish populations that will satisfy the angling public. Because many important fishing streams are already over appropriated, flows can only be improved by putting some of the already appropriated water back into the stream.

This is the concept underlying water leasing.

Why is water leasing important? The answer lies in the habitat needs of fish. Good habitat produces good fish and fishing. Generally, good stream fish habitat consists of three components: (1) an unaltered physical channel, (2) an adequate quantity of water to fill the physical channel, and (3) good water quality. Instream flows are the water quantity component of stream habitat. One means to provide that component is to lease existing diversionary water rights and temporarily transfer that water back into streams. This makes previously unavailable water available to improve fish habitat in dewatered streams.

However, Montana water law prevented this concept from being tried until 1989.

Leasing Legislation

Probably the most controversial natural resource issue that came before the 1989 Montana Legislature was the water leasing study bill, HB 707, which was introduced as a result of the 1988 drought's impact on stream fisheries. The bill was strongly supported by the environmental community and strongly opposed by the agricultural community. Although at one point it was rejected by the Legislature, HB 707 was revived and after amendments was approved in the closing days of the session. It was signed into law in May, 1989.

The purpose of the leasing law is to study the feasibility of leasing existing water rights to enhance streamflows for fisheries. The original bill created a four-year pilot program that allowed only Montana Fish, Wildlife and Parks (DFWP) to lease water rights from willing individuals. DFWP, with the consent of the Fish, Wildlife and Parks Commission, provided the Board of Natural Resources and Conservation (Board) with a list of specific stream reaches on which leasing is desired. The Board could designate up to five stream reaches where water could be leased for instream flows to enhance the fisheries. Amendments to the original bill in both the 1991 and 1993 legislative sessions extended the four-year study to a ten-year study and gradually increased the number of eligible stream reaches from five to twenty. The current law expires June 30, 1999. State government reorganization in 1995 eliminated the Board and most of its duties were taken over by the Department of Natural Resources and Conservation (DNRC).

In 1995, the Legislature again expanded water leasing opportunities, this time without controversy, by authorizing a ten-year study in the upper Clark Fork River Basin which tests allowing any public or private entity to lease an existing water right for instream flows from a willing lessor to benefit the fishery. A similar statute was also passed allowing a similar test state wide.

DFWP can only lease water from a willing party. If DFWP and the water rights holder cannot agree to the terms of a lease, the lease will not occur. Leases *cannot* result in the confiscation of water rights and a lease may not be approved until any objections to the lease are resolved through the DNRC water right change process. Before going through the change process, an Environmental Assessment is written for each lease and distributed for public review and comment.

The maximum amount of water that may be leased is the amount historically diverted by the lessor at his point of diversion. However, only the amount historically consumed, or a lesser amount as determined by DNRC, may be protected for instream flows below the point of diversion.

A lease may be issued for a maximum period of ten years but may be renewed once for an additional ten years. Leases that are the result of a water conservation or storage project, such as converting from flood to sprinkler irrigation, can be issued the first time for not more than twenty years. There is no provision for renewing a twenty-year lease. All leases entered into prior to June 30, 1999, remain valid until the expiration of the leases.

Early Problems

The leasing study got off to a slow start for several reasons. First, MFWP elected to proceed at a cautious, but deliberate, pace given the concern and controversy surrounding passage of HB 707. Second, MFWP proceeded to conduct several studies on the impact of water leasing prior to submitting a change of use application to DNRC. One of the studies determined the market value of leasing existing water rights for instream flows. Two others involved hydrologic analyses of the first two streams where leasing was being investigated to determine the possible effects of the leases on existing water users. Some supporters of the leasing bill disagreed about need for the market value study. They argued that MFWP should simply start negotiating water leases. Because a market for transfer of existing rights to instream flow has not been established in Montana,

the market value study provided a basis for negotiating the price of leasing water. However, the amount paid for a lease is negotiable and the outcome depends, to a large extent, on how the negotiating parties perceive the value of the rights to be leased.

The initial slow pace of the program can also be attributed in part to the post-legislative carryover of concern by some agricultural folks that leasing would interfere with their water rights and would go against the traditional concept of water use, opening the door for other changes that would be unacceptable. Some potential lessors were unwilling to be the first to lease water because of perceived repercussions from others in the agricultural community. As time passed, the concern of these folks diminished as they found that MFWP was not acquiring leases very fast and that interference with their water rights and existing water use was not occurring. Gradually, the leasing program became more accepted as a means to help dewatered streams through agreements between *willing* lessors and MFWP, i.e., no one was being forced to lease water.

Later Successes

DFWP has investigated about 85 potential water leases to date. Most were not pursued because the water rights were too small to help the stream, located in the wrong place, had a poor priority date, appeared to be a invalid, had too short a period of use, had questions about abandonment, or leasing them would have known adverse effects on other users. DFWP has sought and received approval from DNRC for the ten leases described below. All of them are on smaller tributary streams to larger rivers that will improve fish spawning and reproduction in the larger rivers.

1. Mill Creek, tributary to the Yellowstone River near Pray, Montana (August, 1992): The lessor is Mill Creek Water and Sewer District and involves 48 individuals and 95 different water rights. The lease is a result of a water conservation resulting from the conversion of three inefficient ditch systems used for flood irrigation to a gravity pipeline and sprinkler system which irrigates the same lands more efficiently. It provides a once per year, 48-60 hour flow of up to 65 cfs.

2. Mill Creek (October, 1992): The lease is with a single individual and also results from the water conservation project. Both Mill Creek leases will improve spawning conditions for cutthroat trout that migrate from the Yellowstone River. The 48-60 hour flow occurs in August to flush young cutthroat trout from Mill Creek to the Yellowstone River.

3. Blanchard Creek, a small tributary in the Blackfoot River basin in western Montana (August, 1993): This lease is with a single individual on Blanchard Creek. MFWP leases irrigation water by paying the rancher to pasture his cattle elsewhere when streamflows drop to an agreed level. Rainbow trout spawning and young fish production have already improved as a result of this lease.

4. Tin Cup Creek, a spawning tributary to the Bitterroot River in western Montana (October, 1994): This lease is with six individuals holding water rights on an irrigation ditch from Tin Cup Creek. DFWP pays for leaving all six water rights in the creek below the diversion point. The lease is expected to improve flows for rainbow trout that migrate from the Bitterroot River to spawn in the creek.

5. Cedar Creek, a tributary to the Yellowstone River (December, 1993): The lessor is the U.S. Forest Service which had purchased private ranch near the north entrance to Yellowstone National Park for elk habitat. The Forest Service continues to irrigate some of the ranch lands, and has leased some unused rights to DFWP for instream flow to improve Yellowstone cutthroat trout spawning in Cedar Creek. The lease agreement was completed in December, 1993, but the lease was not implemented until 1996 due to objections from water users.

6. Hells Canyon Creek, a Jefferson River tributary (August, 1995): This lease is the result of converting a flood irrigation system to a gravity pipeline sprinkler system. It involves three individuals who irrigate from Hells Canyon Creek. The new system was completed in the fall of 1995, and the lease became effective during the 1996 irrigation season. The lease is expected to improve rainbow trout spawning and reproduction in the creek that will improve the fish population in the Jefferson River.

7. Mill Creek (August, 1995): The lessor is the third individual on Mill Creek who is also on the pipeline, and DFWP leases his salvaged water. The agreement was completed in August, 1995 and was implemented in 1996.

8. Cottonwood Creek on DFWPs Blackfoot-Clearwater Wildlife Management Area (October 1996): This lease involving only DFWP water rights was accomplished under the new upper Clark Fork River Basin leasing study. DFWP rights on Cottonwood Creek were converted to instream flow through a water conservation project that lined the Dryer Ditch, a major diversion that previously dewatered a portion of the creek.

9. Chamberlain Creek, a tributary of the Blackfoot River upstream from Cottonwood Creek (October 1996): The lessor is a private landowner who no longer wishes to irrigate. Water is left instream for westslope cutthrout trout.

10. Pearson Creek, also a tributary of the Blackfoot River near Chamerlan Creek (October 1996): The lessor is the same private landowner as in the Chamerlan Creek lease.

Of the ten leases issued to date, objections were filed in the DNRC water rights change process for two change applications, Cedar Creek and Tin Cup Creek. No objections were received on the other eight leases.

The Future of Leasing

Montana's leasing program is still in its infancy. More interest in leasing is developing as the original concerns subside and word spreads that leasing is not the bogeyman it was first thought to be and people learn that the change process protects those who believe a lease will affect their water rights.

MFWP is currently investigating several other potential leases. These are also on tributary streams to larger rivers and would either improve spawning for these rivers or would improve the habitat for fish that reside in the smaller streams yearround. MFWP will continue to pursue leases in a careful but deliberate manner that will improve fish habitat, fish populations and fishing opportunities.

Water leasing will not solve all of Montana's stream dewatering problems because of the complexity of obtaining leases, the small quantities of water that are usually involved and the potential effects on existing water users. However, it is one tool to help balance the competing uses of a finite water resource.

Liter E. Spence
Montana Fish, Wildlife and Parks

Downstream face of Flint Creek Dam, 1953

EAST FORK RESERVOIR

(continued from page 2)

Pace Construction was hired to inspect the dam's drainage system. The drains were inspected using a robotic video camera. The drains had to be flushed and cleaned to accomplish this process. In addition, the first 40 feet of the main drain had to be exposed and removed requiring the excavation of 6,000 cubic yards of material. The investigations determined that the culvert portions of the dam's main drainage system had reached the end of their useful life, and that migration of fine materials was limited to a fairly small area about 90 feet up the main drainage culvert which is directly under the sinkhole.

All earthen dams leak. Small amounts of water from the reservoir seep slowly through the pore spaces between the clays, silts, and other earthen materials which make up the dam. The core of an earthen dam is made of clay materials. The clay core holds most of the water behind the dam and dramatically reduces seepage. Earth materials on the downstream side of the core are much larger and are intended to provide mass, support, and strength to the dam. The downstream fill is typically designed to be much more permeable than the core. Because water acts as a lubricant between soil particles and allows them to move more easily, water must be removed from the downstream portion of the dam to keep it strong and stable.

To remove water from its pervious downstream side, the original 1936 to 1938 construction of East Fork Dam included a "drain trench system" under the downstream embankment. The trenches were filled with rock and tied to a twelve-inch perforated culvert main drain. This design allows seepage water to be collected in the rock-filled trenches and then conveys it to the perforated culvert. The main drain culvert then carries the water out of the dam's embankment. This drainage system is not directly connected to the water stored behind the dam.

Identifying the aging drains as the problem was essentially good news. The dam remains basically sound. Overall dam structural condition is good. The drainage parts which control seepage are all repairable structures. Rehabilitation expenses are significant but not prohibitive–approximately $1.4 million.

Rehabilitation of East Fork Dam includes five components. First, several repairs will directly reduce and control seepage through the dam. The entire length of the main drainage culvert will be removed. The single main drain will be replaced with three heavy duty plastic drain pipes. All of these drains will connect to a portion of the dam's existing internal rock fill drainage system. A chimney drain–a vertical wall of very porous materials –will be constructed in the upstream portion of the embankment as previously excavated materials are replaced. The chimney drain will intercept seepage and transport it downward into the existing drainage system. Again, this will aid in keeping the embankment dry. Another sub-surface drain will be installed in the dam's east groin. Finally, an existing culvert in the dam's west embankment will be lined and reinforced in place, using a specialty plastic. This will dramatically improve the strength and life of a drain which captures a spring and carries the water through the dam.

Second, wells drilled during the evaluation phase have been converted to permanent monitoring wells. These will be used to evaluate and monitor seepage into and through the dam and its foundation. The wells will enable engineers and dam operators to evaluate the effectiveness of repairs. They will also provide operators the tools necessary to regularly monitor seepage conditions, identify changes in seepage, and potentially act as an indicator of changing dam conditions.

Third, to reduce the water pressure in the dam's foundation, ten drainage wells will also be installed. These wells will be drilled just below the existing toe of the dam and will be completed in the foundation and bedrock material. Like the drains they will remove seepage water and therefore maintain stability of dam's foundation.

Fourth, an additional earth berm will be added to the toe of the existing dam. Engineers determined that this relatively inexpensive addition to the dam's downstream embankment would significantly strengthen the dam and improve its long term safety.

Fifth, test pits above the dam indicated a need to rehabilitate the impervious clay blanket adjacent to and upstream of the dam's east abutment. The existing blanket will be exposed, rehabilitated, and thickened with an additional sixteen inches of clay and then covered with a thicker protective layer of native material.

East Fork Dam rehabilitation is now underway. Construction is scheduled to be completed in November of this year. This schedule is aggressive, but attainable. DNRC is committed to an East Fork Dam rehabilitation project that provides for the safety of Rock Creek residents and ensures the long-term viability of a significant Clark Fork basin water storage site.

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IN THIS ISSUE

With this issue, the Upper Clark Fork River Basin Steering Committee marks its third cycle of local planning and management of the waters of the upper Clark Fork River basin via a partnership between local water users and government water managers. The Steering Committee has several new members appointed in a new way—by the basin's six conservation districts and six county commissions. The previous Steering Committee successfully requested the Montana Legislature to change the method of appointment so that a majority of its members would be selected by and accountable to the units of government closest to the basin's residents. The list of the twenty-two members, together with their telephone numbers and addresses, and the entity that appointed them is found on the back page.

This issue also covers the beginning of a new state program critically important to all Montana water users—the state's "TMDL" or "Total Maximum Daily Load" program. As explained by Kathleen Williams of the Legislative Environmental Policy Office, through the TMDL effort, the state will determine which Montana streams and lakes have water quality problems and take steps to clean them up. Gary Ingman, Steering Committee member and Department of Environmental Quality (DEQ) Water Monitoring Bureau Chief, has reported that the state intends to pursue a voluntary, partnership approach to identifying and cleaning up waters with quality problems. DEQ is directed by statute to work with local watershed groups such as the Steering Committee to implement this program. Over the coming months, the Steering Committee will be considering whether and how to become involved with identifying basin waters with quality problems and with developing plans to address them.

The Steering Committee is at work to produce a work plan that will guide its water planning and management efforts over the next three years. Coming issues will cover this work plan as well as basin water topics such as the Flint Creek return flow study being conducted by the Bureau of Reclamation, DNRC, and Flint Creek water uses.

WHAT! NOT ANOTHER ACRONYM

By Kathleen Williams, Resource Policy Analyst
Legislative Environmental Policy Office

excerpted from THE INTERIM, *September 1997*
published by the Montana Legislative Services Division

During the 1997 Legislative Session, House Bill No. 546 added yet another acronym to the Capitol parlance — "TMDL" or "Total Maximum Daily Load." One of the major pieces of natural resource-related legislation passed by the 55th Legislature, HB 546 provided more explicit direction to Montana's Department of Environmental Quality (DEQ) on how to implement a major directive of the federal Clean Water Act essentially, determine which Montana streams and lakes have water quality problems and take steps to clean them up. TMDLs are tools states can use to address these problems and they will likely be the topic of water quality discussions in Montana for years to come. But first, some background.

TMDLS AND THE FEDERAL CLEAN WATER ACT (CWA)

As with many states' environmental laws, Montana water quality policy is heavily influenced by federal law and regulations. For example, before a state can issue permits for pollutant discharges into its rivers, it must develop a program that meets Environmental Protection Agency (EPA) requirements. The state is then "delegated' the responsibility for issuing pollutant discharge permits; if a program is not delegated, EPA retains the responsibility to issue the permits.

A primary purpose of the federal Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Though it "recognizes, preserves, and protects" states' responsibilities in water quality protection and resource planning and development, it assigns overall administration of the Act to the federal Environmental Protection Agency.

The Act requires states to adopt water quality standards (WQSS) for the protection of surface water quality. Water qual-

ity standards are set based upon the conditions necessary to support the "beneficial uses' assigned to a water body — those uses the water should support. For example, the beneficial uses assigned to the Bighorn River (above Hardin) are: drinking and food processing (after conventional water treatment); water contact recreation; support of cold-water fish species, other aquatic life, waterfowl, and furbearers; and agriculture and industry. The water quality standards set to support these uses address changes from natural conditions for such parameters as coliform, dissolved oxygen, pH, turbidity (lack of clarity), temperature, color, toxics, and other detrimental or harmful substances.

Changes in water quality from natural conditions typically emanate from either point-source (PS) discharges or non-point source (NPS) discharges. Point-source discharges are from an identifiable entry point (e.g. sewage treatment plant pipe, canal, etc.); non-point sources are those that carry pollutants into waters from broad expanses of land (i.e. not a specific point). Inputs from agricultural operations and timber harvest activities are often non-point sources of water pollution. Point-source discharges are controlled through the state's discharge permit program. NPS discharges are addressed through encouraging voluntary use of certain practices determined to reduce water quality impairments. These are termed "best management practices," or BMPs.

Examples of forestry BMPs included: crossing streams at right angles, sizing permanent culverts larger than 15 inches in diameter, and avoiding skidding over drainage areas.

Section 303(d) of the federal Clean Water Act and related regulations require states to assess the condition of the state's waters to determine if their quality is "impaired" (does not meet standards) or "threatened" (is likely to violate standards in the near future). The result of this review is often called the "303(d) list," which must be submitted to EPA every other year. Section 303(d) also requires states to prioritize and target water bodies on their list for TMDL development, and to develop TMDLs for impaired and threatened waters.

In theory, a TMDL is first a determination of which land use is contributing what to water quality conditions in an impaired (or threatened) segment, both point-sources and non-point sources. The calculations must also define and account for natural background water quality conditions. Once those calculations are made, all contributors are assigned an allowable share of the pollutant load that they can discharge. The assignments must incorporate necessary reductions in the parameters causing the segment to be classified as "impaired," Some dischargers may wish to "trade" portions of their allocations with other dischargers, which is allowed. The "total maximum daily load" (TMDL), then, is the total loading of certain pollutants that the water body can accommodate without exceeding water quality standards — it's the total above natural conditions that (theoretically) gets divvied up among dischargers to an impaired or threatened water body.

A hypothetical (and extremely simplified!) example may be helpful:

> Acronym Creek, located near the pastoral (but growing) community of Abbreviation, Montana, has been assigned the same beneficial uses as the Bighorn (see preceding text), and water quality standards have been set accordingly. Land uses affecting water quality of the South Fork of Acronym Creek include cattle ranching, residential subdivisions on septic systems, a small industrial plant, and a small waste treatment plant. The town of Abbreviation draws its drinking water from Acronym Creek.
>
> According to Montana's 303(d) list, water quality in (hypothetical) Acronym Creek is "impaired" due to excess temperature and "threatened" due to increasing turbidity. Contributors to increased temperature have been determined to be a combination of riverfront residents removing streamside vegetation to improve views, the industrial plant's discharge of its cooling process waters, and water withdrawals. In some locations, summertime water temperatures have exceeded 75°F, which can be lethal to trout. Turbidity is beginning to affect the ability of fish to feed. High temperatures are contributing to increased algal and weed growth, requiring the Town's one maintenance worker to continually travel to the water plant to clean weeds and algae from the intake.

THE MONTANA SITUATION— SETTING THE STAGE FOR HB 546

So, where do we stand in Montana with regard to the mandate of Section 303(d) of the federal Clean Water Act —to assess and address impaired and threatened waters? Frankly, we are somewhat better on the "assessing" than the "addressing". Montana's 1996 303(d) list submitted to EPA included about 900 water bodies that had been determined to be impaired or threatened.

Despite the length of the list, as of 1996, only one comprehensive TMDL had been all completed in Montana (though several were in progress). One complication was that DEQ was uncertain whether they had sufficient state statutory authority to aggressively pursue TMDL development in Montana, and even if they did, they lacked the resources to do so. In 1992, seven water bodies had been targeted for TMDL development by 1994. In 1994, all seven were still on the targeted list.

And these issues were not unique to Montana. As of 1996, the EPA was being (or had been) sued in 16 different states based on allegations they had shirked their responsibilities under 303(d) to ensure states moved forward in water quality assessment and TMDL development. EPA was scrambling to defend itself, settle lawsuits, and make some moves nationally to provide greater assistance to states.

At the same time, long-time concerns were again voiced in Montana over whether so many Montana water bodies really deserved to be called "impaired" or "threatened." What criteria were used to make that decision? Were there real "data" to support the conclusion or was it based on "windshield surveys"? Was the state on shaky ground legally if they continued to issue discharge permits on "impaired" streams when TMDLs hadn't yet been developed? Big questions.

The Montana DEQ had achieved more than many other states involved in TMDL-related lawsuits. After all, Montana had made comprehensive efforts on the "assessment" end. Other states hadn't gotten that far, and the DEQ had been making efforts at water quality improvement through means other than TMDL development for years.

So what happened? In early fall of 1996, the Western Environmental Trade Association sponsored a forum on these issues and produced a related Position Paper on TMDL development in Montana. The paper (together with a briefing paper and alternatives analysis prepared by DEQ) provided a starting point for a DEQ-sponsored collaborative effort to draft a legislative proposal to address issues surrounding the 303(d) "list" and what went on it, TMDL development, and all the decisions surrounding the priorities, method, and coordination involved in implementing this mandate of the Clean Water Act. Many hoped that successful TMDL legislation would illustrate that Montana was

committed to moving forward on TMDL development. If so, maybe a lawsuit wouldn't be filed, or, if one were, the court might resolve a suit in a manner that retained state autonomy to develop TMDLS.

But on December 2, 1996, what some might have considered inevitable happened. EPA received notification of intent to sue over lack of TMDL progress in Montana. EPA was now in a similar defensive position in Montana, as it had been in Ohio, Kansas, Washington, New York, Georgia, Alaska, Minnesota, Idaho, and others.

The increased potential for a lawsuit added urgency to efforts to address TMDL issues in Montana. If a suit were successful, EPA might be forced by the court to develop TMDLs for Montana; the state would lose authority and EPA had paltry resources to dedicate to such a mandate. The result could be the top-down, heavily regulatory, federal solution to water quality issues in Montana. Not very desirable from a state autonomy point of view! The lawsuit was filed against EPA on February 28, 1997.

The DEQ collaborative effort succeeded in airing many of the concerns of the spectrum of parties that participated. Many compromises were made and issues addressed, but there was not "consensus ' on the result before it had to move into the bill drafting stage at the Legislature in late January. Several revisions were incorporated during the drafting stage, and a few amendments during the hearing process, but the bill proceeded through the Legislature and went to the Governor relatively unchanged from its introduced version. Other bills authorized approximately $2 million in former and new funding, as well as 9 new positions (FTEs), to dedicate to the efforts covered in HB 546.

HB 546—More Than an Acronym

HB 546 was requested by Sen. Grosfield and sponsored by Rep. Tash. What did it do? In general HB 546:

- defined the terms necessary to move forward in TMDL development and provided stronger legal authority to do so;
- required the state to monitor state waters to accurately assess their quality and to develop TMDLs for impaired and threatened wàters;
- set procedures on how to determine whether "sufficient credible data" was used in developing the 303(d) list, required that waters lacking such data be removed from the list by October, 1999, and allowed persons to petition DEQ to add to or remove a water body from the list;
- required DEQ to consult with local watershed advisory groups and conservation districts in developing and revising the list and in developing TMDLS, set up a statewide advisory group to advise on prioritization, and set out criteria to be used in determining priorities for TMDL development;
- specified that TMDL development must include quantified load allocations for point source discharges and development of voluntary Best Management Practices (BMPS) for nonpoint sources;
- required monitoring of the success of TMDL strategies and reevaluation of the approach if water quality standards are not achieved on waters with TMDLs within 5 years; and
- provided a 1-year time frame to determine how to develop necessary TMDLs, and a 10-year time frame to do it.

Quite a charge, but also a strong message that the Legislature was serious about addressing the TMDL issue in Montana.

So how might our hypothetical Acronym Creek be affected by HB 546 implementation? Though extremely simplified (and very optimistic!), one scenario might be as follows:

> Due to growing concern over the water quality in Acronym Creek, local residents, representatives of the local conservation district, and some town officials had recently started meeting to discuss what might be done. With the passage of HB 546 and because Montana's 303(d) list showed Acronym Creek as a high priority for TMDL development, DEQ staff contacted these folks and offered their assistance with finding solutions to the temperature and turbidity problems.
>
> State water quality staff traveled to Abbreviation, reviewed the condition of the Creek, took water quality samples, and met with residents and others regarding potential solutions. They calculated estimates of the share of the pollutant loading that might be attributable to certain land uses, and determined how much the total loading might have to be reduced to bring the Creek back into compliance with water quality standards.
>
> After several meetings among residents and state and local officials, it was determined that if half of the total length of the currently denuded stream banks could be revegetated, temperature fluctuations might be reduced over a period of a few years to the point of compliance with standards. Since the vegetation might also hold more sediment in place, the turbidity should also be reduced, thereby resolving that problem automatically.
>
> The owner of the ranching operation agreed that if plantings were of no cost to him, and he was successful in getting a grant to fence off his cattle from all but select portions of the Creek, the revegetation could occur along bare portions of his creek frontage. Several residential property owners agreed to include their creek frontage in the revegetation project, too.
>
> DEQ and the conservation district helped to develop an affordable planting list (mostly willows) and mapped the locations for revegetation. They documented the calculations and solution as Acronym Creek's TMDL, and the Creek was removed from the 303(d) list.
>
> The following spring the conservation district sponsored the willow slip cutting and planting and a town potluck in the park afterwards. Monitoring over the following two years showed that temperature fluctuations had decreased, and the water intake was less problematic. Kids were catching more fish in the Creek, too.

Current and Future Challenges ...

HB 546 addressed many issues brewing in Montana in 1996. But, many still remain, and the bill itself created its own challenges. For example, the issue of how to determine when a water body meets or doesn't meet standards; does one exceedence during a flood or drought event automatically qualify it as impaired? Also, petitions are already coming in to delist waters. HB 546 gives DEQ 60 days to answer a petition, and answers require analysis. And, if much of the emphasis is on a locally driven, voluntary approach, is that consistent with the mandate to get the job done in 10 years? There will be increasing numbers of TMDLs to monitor and evaluate; lots of coordination which needs to happen; a statewide advisory group that needs to be staffed; a big state; a starting list of 900+ TMDLs that need to be done; multiple issues for each water body; and the lawsuit.

Many challenges loom. As one DEQ staffer put it, the greatest challenge in HB 546 implementation is "finding efficient approaches to TMDL development that get the job done water quality-wise, achieve a high level of local buy-in, and are politically correct, cost-effective, and minimally burdensome on landowners (financially, culturally, and otherwise)."

New Steering Committee Appointed

Pursuant to legislation passed by the last Montana Legislature, the members of the Upper Clark Fork River Basin Steering Committee have been re-appointed. Entities making the appointment were the basin's six conservation districts, six county commissions, and the Director of the Montana DNRC. The members and the constituency or area they represent along with the entity that appointed them (noted in italics) include:

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Brent Mannix
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THE UPPER CLARK FORK Water News

VOLUME 3 NUMBER 2

IN THIS ISSUE

This issue addresses three topics of concern to Upper Clark Fork Basin water users: the listing of the bull trout as a threatened species, TMDL (water quality management plan) development, and the pending settlement of the Natural Resource Damage law suit brought by the State of Montana against ARCO. Ken MacDonald, DFWP's Bull Trout Coordinator, explains what the recent listing of bull trout as a threatened species under the federal Endangered Species Act will mean for Montanans. The Montana Attorney General's Office summarizes the provisions of the settlement agreement pending before the federal court in the State's natural resource damage law suit against ARCO. And finally, Gerald Mueller, Upper Clark Fork River Basin Steering Committee's facilitator, reports on the Steering Committee's activities regarding the development of water quality (TMDL) plans.

There have been several changes in to the membership of the Steering Committee since the last issue of *Water News*. Three members—K.D Feeback, Laurel Holsman, and Dennis Workman—have either retired or left the basin. The new steering committee members are Martha E. McClain, representing Missoula Conservation District, Susie Peraino representing Rock Creek, and Don Peters representing the Montana Department of Fish, Wildlife and Parks.

BULL TROUT LISTING

What Does It Mean?

By Ken MacDonald
MDFWP Bull Trout Coordinator

As of July 10, 1998, bull trout throughout the Columbia River Basin are classified as threatened under the Endangered Species Act (ESA). This includes bull trout populations in Washington, Oregon, Idaho, and Montana. When a species is listed as threatened under the ESA, it receives protection from "take." Take means to harm, harass, pursue, kill, or to attempt to do such things. These are further defined to include protection of habitat used by the species. In the rule listing bull trout as threatened, the following items were identified as take:

- Take of bull trout without a permit, except in accordance with applicable state fish and wildlife regulations.
- Introduction of non-native fish species that compete with, prey on, or hybridize with bull trout.
- Destruction or alteration of bull trout habitat by dredging, channelization, diversion, instream vehicle operation, or rock removal.
- Discharges or dumping of toxic chemicals, silt, or other pollutants into waters supporting bull trout that result in death or injury to the species.
- Destruction or alteration of riparian or lakeshore habitat and adjoining uplands of waters that support bull trout by timber harvest, grazing, mining, hydropower, development, or other developmental activities.

This listing means that bull trout will receive greater protections than state regulations provide, and that the State no longer has primary management authority for bull trout. Any projects that may result in take of bull trout or habitat must be authorized by the U.S. Fish and Wildlife Service. Even management and restoration activities undertaken by the Montana Department of Fish, Wildlife, and Parks must first be authorized if they may result in take. The only exception is take of bull trout in accordance with state fishing regulations. Existing state fishing regulations are recognized as being sufficient to protect bull trout, and so recreational angling will not be further impacted. Land management activities in bull trout habitat likely will be more restricted.

Despite the listing, Governor Racicot's Bull Trout Restoration Team will complete the Bull Trout Restoration Plan, which they have been working on since 1994. The plan, which is about to be released for public comment, includes a restoration goal, provides guidance for conservation of populations

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that are stable or increasing, and recommendations for restoration of populations that have declined. The intent of the Restoration Team is that the plan be used by local watershed groups, management agencies, and private landowners as a guideline to protect, and where necessary, restore, bull trout populations. The Restoration Plan is intended to be implemented voluntarily at the local level, and was intended to negate the need for more rigid regulatory processes such as those that come with ESA listing. Montana is disappointed that state-led restoration efforts were not given an opportunity to succeed, and that ESA listing occurred. However, now that listing has occurred, we hope Montana's Restoration Plan will be used by the U.S. Fish and Wildlife Service as the basis for the Montana portion of a federal recovery plan, and that adherence to its recommendations will reduce the chances for take, and thus reduce the need for federal authorization to initiate projects.

The goal of the Governor's restoration plan, like that of the ESA listing, is to protect and recover one of Montana's native trout species. Although there is disagreement about how to best accomplish that goal, it remains a worthy one. The State will continue its efforts to restore bull trout, regardless of ESA listing. Where state authority is lacking or inadequate, the federal listing will provide additional protections for bull trout. For example, federal land management agencies such as the U.S. Forest Service are now required to ensure their land management activities do not jeopardize bull trout populations. We hope that this listing will be applied in a reasonable and realistic way, and that Montana's leadership in restoration and management of bull trout will be recognized.

MONTANA v. ARCO

Summary of June 19, 1998, Partial Settlement

Case Background: The State of Montana filed suit against the Atlantic Richfield Company (ARCO) in 1983 seeking damages for injury to natural resources in the Upper Clark Fork River Basin (UCFRB), contending that water, land and wildlife resources in the UCFRB had been harmed by years of mining and smelting. The State sought both restoration damages to return the UCFRB to productive use and compensable damages to repay the State and its citizens for lost use of the injured natural resources.

The case went to trial in March of 1997 after U.S. District Judge Paul Hatfield divided the case into the following phases: 1) ARCO's liability; 2) injury to fish and surface water; 3) injury to wildlife, vegetation and soil in the riparian and upland areas; 4) injury to groundwater; 5) monitory damages to cover restoration costs; 6) compensable damages for lost use of the resources; and 7) ARCO's counterclaims against the State. To date, the first four phases of trial have been completed. Court-ordered settlement talks continued throughout the trial and resulted in a settlement of some of the State's claims, set forth in a consent decree filed with the Court on June 19, 1998.

Key Terms of the Partial Settlement: ARCO will pay the State: 1) $118 million for restoration of lost or injured resources in the UCFRB and ARCO will transfer to the State $2 million in real property along Silver Bow Creek (SBC); 2) $80 million for the remediation, or clean up, of the SBC Operable Unit; and 3) $15 million to reimburse the State for litigation and damage assessment costs incurred through 1997.

All of the State's claims against ARCO were not settled through negotiation of the June 19, 1998 consent decree. There are three sites in the UCFRB for which the State retains its restoration claims against ARCO. These claims, amounting to $206 million in damages alleged by the State, relate to natural resource damages for restoration of the Anaconda Uplands area, the Clark Fork River, and the Butte Alluvial Aquifer. According to the State consent decree, these claims will be settled or litigated following the issuance of the EPA Records of Decision (RODS) for each of the sites. The dates for issuance of these three RODs are expected to be September 30, 1998 for the Anaconda Uplands, fall of 1999 for the Clark Fork River, and early 2001 for the Butte Alluvial Aquifer. If the parties do not negotiate a settlement of these claims within 60 days of issuance of the ROD for each site, a trial date will be set to resolve the State's restoration damage claims pertaining to each site.

The Next Step: The State consent decree, lodged with the Court on June 19, 1998, is contingent upon the successful negotiation by mid-October of a second consent decree involving the federal government and other parties. This second decree, the SST OU consent decree, relates primarily to the $80 million remediation settlement of SBC set forth in the State consent decree. A public comment period will follow the lodging of the SST OU consent decree with the Court.

Settlement monies for restoration damages will not be transferred to the State until after the Court approves both the State consent decree and the SST OU consent decree and resolves any appeals of these decrees. If the SST OU consent decree is successfully negotiated by mid-October, approval of both decrees is expected by the end of this year.

Presently, the State is developing a framework to consider and make decisions regarding restoration alternatives in the UCFRB. Federal and State law require the State to use any money recovered in the lawsuit to restore, replace or acquire the equivalent of the natural resource or the services provided by the resources that were injured or lost due to the release of hazardous substances.

Questions regarding this consent decree may be directed to:
State of Montana, Department of Justice
Natural Resource Damage Litigation Program
131 0 E. Lockey, P.O. Box 201425
Helena,MT 59620-1425
(406) 444-0205

TMDL's and the Upper Clark Fork River Basin

by Gerald Mueller

TMDL development is coming to the upper Clark Fork River Basin.

The Upper Clark Fork River Basin Steering Committee has decided to take on the role of a local watershed advisory group set out in Montana's TMDL law, HB 546, which was passed by the 1997 Montana legislature and was explained in the last issue of this newsletter. By assuming this role, the Steering Committee will be able to advise the Montana Department of Environmental Quality (DEQ) concerning the revising and reprioritizing of the list of impaired water bodies in the Upper Clark Fork Basin and in developing TMDL's, i.e. water quality plans, for addressing them. The Steering Committee has decided to become involved in this effort to further the two goals of its water management plan:

- To provide for continued planning and management of the waters of the upper Clark Fork River Basin rooted at the local level; and
- To balance all of the basin's beneficial water uses.

To guide its water quality planning activities, the Steering Committee has adopted a work plan with two objectives.

303d List: The first objective is the examination by local water users of the state's list of impaired or threatened water bodies in the upper Clark Fork. The federal Clean Water Act and EPA requires the state to compile every two years a list of those water bodies in Montana that either are not meeting water quality standards and are therefore "impaired," or which are likely not to meet the standards and are "threatened." This list is known as the "303d list." The Steering Committee intends to organize night meetings in several basin locations (see box) to allow local water users to learn about the list, to understand why their local streams are on it, and to identify possible errors in it.

DEQ staff will attend these meetings with the data underlying the list, and local water users will be able to ask questions about the data and identify possible data errors. DEQ staff will also explain how water bodies can be removed from the list and review the process of developing water quality management plans, i.e. TMDL's, for the impaired or threatened streams.

Pilot Programs: The second objective of this work plan is the development of pilot water quality management plans so that local water users and the agencies can learn effective steps for developing plans leading to removal of basin water bodies from the 303d list. The Steering Committee is in the process of selecting a small number of candidate stream segments from DEQ's 303d list for immediate development of plans to correct the impairment and eliminate the actual or threatened non-support of one or more water uses. The Steering Committee will meet with the candidate stream water users and other potential partners and cooperators to seek their agreement for the pilot development. **The pilots will be run on a strictly voluntary basis.** If the local water users are not supportive, development of the water quality management plan will not proceed. The Steering Committee does not recommend that local water users participate in a pilot unless they see an advantage for doing so. One significant potential advantage is the availability of funding from state and/or federal agencies to support the pilot plan's water quality improvement activities.

303d List Meeting Dates, Times, and Locations

DEER LODGE VALLEY AREA STREAMS
October 29, 1998; 7:00pm
Deer Lodge Conservation District Office, 1 Hollenback Rd., Deer Lodge.

FLINT CREEK AND UPPER ROCK CREEK STREAMS
November 9, 1998; 7:00pm
Granite County Museum in Philipsburg.

Upper Clark Fork River Basin Streams on the 303(d) List

Upper Clark Fork Sub-Basin

Clark Fork River Mainstem • Silverbow Creek • Brock Creek • Lost Creek • Mill Creek • Mill-Willow Bypass • Modesty Creek • Monarch Creek • Mulkey Creek • Peterson Creek • Racetrack Creek • Snowshoe Creek • Spotted Dog Creek • Telegraph Creek • Tin Cup Joe Creek • Twin Lakes Creek • Warm Springs Creek • Dunkleberg Creek • Little Blackfoot River • Threemile Creek • Willow Creek • Carpenter Creek • Harvey Creek • Storm Lake Creek • Antelope Creek • Woodson Creek • Ten Mile Creek • Rattler Gulch • Wallace Creek • Cramer Creek • Dempsey Creek • Dog Creek • Elliston Creek • Gold Creek • Hoover Creek

Flint-Rock Sub-Basin

Brewster Creek • Scotchman Gulch • Sluice Gulch • Basin Gulch • Eureka Gulch • Cornish Gulch • South Fork Antelope Creek • Miners Gulch • Willow Creek • Flat Gulch • Sawmill Gulch Saw Pit • Williams Gulch • Quartz Gulch • East Fork Rock Creek • West Fork Rock Creek • Rock Creek Mainstem • Douglas Creek • Camp Creek • Londonderry Adit • Smart Creek • Stewart Creek • Flint Creek • Fred Burr Creek • South Fork Willow Creek • Boulder Creek • North Fork Douglas Creek • Princeton Gulch

Blackfoot Sub-Basin

Blackfoot River • Black Bear Creek • Frazier Creek • Chamberlin Creek • Marcum Creek • North Fork Blackfoot River • Union Creek • West Fork Ashby Creek • Elk Creek • Keno Creek • Cottonwood Creek • Willow Creek • Blanchard Creek • Richmond Creek • Sandbar Creek • Washington Creek • Douglas Creek • Cottonwood Creek • Wales Creek • Ward Creek • Warren Creek • Yourname Creek • Poorman Creek • Camas Creek • Deer Creek • West Fork Clearwater River • Buck Creek • Monture Creek • Belmont Creek • Arrastra Creek • Nevada Spring Creek • Rock Creek • Beartrap Creek • Day Gulch • Washoe Creek • Murray Creek • Rattler Gulch • Bear Creek Flats • Cramer Creek • Deep Creek • East Ashby • Jefferson Creek • Gallagher Creek • Braziel Creek • Nevada Creek

UPPER CLARK FORK RIVER BASIN
STEERING COMMITTEE

The Steering Committee members and the constituency or area they represent along with the entity that appointed them (noted in italics) include:

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